

YALE MEDICAL

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TREATISE  
ON THE  
IMMEDIATE CAUSE,  
AND THE  
SPECIFIC TREATMENT  
OF  
PULMONARY PHTHISIS,  
AND  
TUBERCULAR DISEASES.

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BY J. FRANCIS CHURCHILL, D.M.P.

GRADUATE OF THE PARIS SCHOOL OF MEDICINE; MEMBER OF THE IMPERIAL ACADEMIES  
OF MEDICINE AND SCIENCES.

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TRANSLATED FROM THE FRENCH BY A PHYSICIAN.

NEW-YORK:

J. WINCHESTER, PUBLISHER, 43 JOHN STREET.

AMERICAN AND FOREIGN AGENCY.

# BININGER'S OLD LONDON DOCK GIN.

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A. M. BININGER & CO.,

(Established 1778,)

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Entered, according to act of Congress, in the year 1853, by

J. WINCHESTER,

In the District Court of the United States for the Southern District of New York.

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J. WINCHESTER,

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\* The *Hypophosphite of Iron*, which was decidedly rejected by Dr. Churchill, on account of its tendency to aggravate or induce the inflammatory condition in *Phthisis*, is offered because it is believed that it is a *perfect substitute* for the PROTOXYD OF IRON, and may be used whenever the latter is indicated. So, it is believed, the *Hypophosphite of Quinine* will ultimately supersede the use of the Sulphate.

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## PUBLISHER'S PREFACE.

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"Not only is chemical science capable of pointing out the exact chemical constitution of the body, and the changes and transformations which are constantly occurring, but it has proved competent to direct us respecting the proper methods by which certain elements, or agents, may be furnished when pathological symptoms indicate AN INSUFFICIENT SUPPLY."—*Boston Medical and Surgical Journal*.

The Treatise of Dr. John Francis Cburchill, announcing to the world the most brilliant discovery of medical science during the past century—that of the therapeutical action of the Hypophosphites in *Phthisis Pulmonalis*—needs no commendation to insure for it a careful perusal and the earnest consideration of both the professional and non-professional public.

That the translation will be found to contain errors, is probable. These, however, the good sense of the reader will correct. In the "Notes of Cases," we have used condensation and abbreviation, where the details were merely the daily repetition of treatment without particular change in the symptoms. In every case, the translator has faithfully preserved the material facts connected with the *specific treatment*, so as to present a full view of the changes in the symptoms produced by the remedy. As the translator of the work is himself a physician, we believe the abridgments made by him in no respect impair the value of the record of the cases.

The importance to the world of a discovery which promises to render Consumption amenable to medical science, so that, "instead of occupying the first place in the causes of mortality, it will dwindle down to a comparatively insignificant item," must be manifest to all.

The results already obtained by the use of the Hypophosphites in tuberculosis, fully confirm the claim that IT IS THE SPECIFIC REMEDY AGAINST THE DIATHESIS. Though on the first announcement of the discovery, it was received with disfavor by many eminent members of the medical profession, opposition to the treatment is rapidly disappearing under the accumulating evidences of the efficacy of the remedy in every case in which it has been intelligently exhibited.

Up to the period of Dr. Cburchill's discovery, the Hypophosphites were pos-



scssed of no commercial value, being known only as beautiful specimens in the laboratory of the chemist. "It is not very astonishing," says Dr. Churchill, "that the Hypophosphites which *are now ordinarily sold*, and which have been prepared in consequence of the great demand created since my Report, should not always present THAT PURITY INDISPENSABLE TO SUCCESS IN THE TREATMENT. In five cases out of six, *they are totally unfit for medical use.*"

It is to this impurity, as well as to the many "crude formulæ" that have been *imagined* by uninformed practitioners, that we must attribute any ill-success that may have followed the use of the remedy; and it is against these impure preparations and "crude formulæ," that the profession and the public need to be protected, and the benefits of the discovery thereby secured to the sick.

It was therefore an important consideration, in undertaking the introduction of Dr. Churchill's treatment in the United States, to guard the patient from the dangers that threatened him from the ignorance or the charlatantry which never fails to seize upon and desecrate whatever is valuable. Preparations of the most absurd and deleterious character have been palmed off even upon the medical profession, under the name of the Hypophosphites; and others, containing inert, or injurious elements, invented to satisfy the greed of some mercenary trifler with the lives of sufferers, have been successfully advertised and sold, thus retarding the realization of the inestimable benefits which must result from the speedy adoption of the authentic treatment.

In no instance has any important fact been withheld; but we have followed, implicitly, the conditions, both in the manufacture and the administration of the Hypophosphites, laid down by Dr. Churchill. The chemical experience we have enlisted in the preparation of these salts, offers an absolute guarantee of their purity; and, to the end that all attempts to mislead may be rendered abortive, we place in the hands of the reader (in the publication of this work), the means of forming a correct judgment, not only in regard to the new treatment, but also as to the means by which its full benefits may be secured.

Phosphorus, in itself, is an active and deadly poison. In combination with one equivalent of oxygen and two of water, it forms hypophosphorous acid; and this, combined with a base—Lime, Soda, etc.,—forms the chemical salts known as Hypophosphites. When taken into the system in this form, it is entirely harmless; and by the changes which result from its further oxydation, it is rendered capable of entering into, and fulfilling its high design in the brain and nervous system. Upon this well-established, but beautifully simple reaction, is founded Dr. Churchill's Theory of the CURE OF CONSUMPTION.

## PREFACE OF THE AUTHOR.

"We are going to consider the most cruel enemy of the human race, and to consider the means of contending against it with success."—*LOUIS on Phthisis.*

"Taking as a basis the sum generally considered as that of the population of the globe, it is fair to estimate that from eighty to one hundred millions of its inhabitants succumb, by a premature death, to some form of this disease. It destroys nearly a sixth of the population of England."—*ANCELL on Tuberculosis.*

"England pays an annual tribute of nearly sixty thousand deaths from pulmonary phthisis.

"Figures extracted from the bills of mortality of London, show that eighteen deaths (more than one-sixth,) out of every hundred, depending on no matter what causes, arise from those tuberculous diseases."

"The ratio of mortality from phthisis, is very nearly the same in Paris as in London."—*BODIN, Medical Geography.*

THE circumstances which induce me to lay this book before the public, demand, in my opinion, some explanation.

The Academy having referred my Report to a "Section," it would have been equally in harmony with my interest and my wishes to have waited, according to the usual custom, the result of its deliberations.

Both science and humanity had every thing to gain by having my pretensions, at as early a period as possible, either coincided in or condemned by such a recognized authority. Unfortunately, the present condition of science, or rather, I should say, of medical opinions; the singular prejudices which exist as regards questions of therapeutics—the very object of my book—and perhaps the means adopted in order to solve the problem which I had undertaken:—all these causes conspired to convince me that it would be in vain to wait for the official judgment of the Academy. Assured of this fact by reliable information, I decided to publish my Report, in order that each person might have an opportunity to judge of and employ my method of treatment under the conditions indispensably necessary for its success.

A number of practitioners, both in France and England, have already commenced to experiment, and many have written to me for information upon the subject. The nature of the information sought for has convinced me that it was my duty to explain my plan of treatment in all its details. When the results of these experiments shall become known, I think that the Academy, itself, will not longer delay an examination of the facts established by a large number of observers. With

the exception of some few typographical corrections, I have reproduced my Report precisely as it was presented to the Academy. I have also appended to it the notes of the cases upon which it is based, comprising all the cases which have been submitted to my treatment, no matter what was the result; for it is in this way only that the value of a remedy can be estimated. A single case has been kept back, it being still under treatment.

Under the chapter entitled "*Additions to the preceding Report*," I have replied to the objections already made, and laid particular stress on certain points which I had only referred to in my Report. In the historical sketch, I have pointed out the progressive steps in the investigation of this subject, made by different experimenters, some of them long anterior to me, others very nearly contemporary. In this I have endeavored, as far as is ever permitted to human weakness, to judge the merit of each one fairly.

Finally, under the head of "*Deductions*," I have indicated certain consequences of my theory in regard to tuberculosis, of which I have not yet established the exact data; but which I hope hereafter to be able to examine and determine more fully, especially in their chemical relations. This book is, in truth, but a sketch of the work which I had projected; but the state of my health, and above all the circumstances attending its production, have prevented me from extending it to a greater length.

The causes which have hitherto frustrated my efforts are, I think, of sufficient general interest to make it proper to detail them here. Having obtained, at Havana, the notes of the results of those cases which comprise the first in each of the series to be hereafter given, I determined upon returning to Europe in order to pursue my researches and establish my discovery by incontestable facts, outside of the special influences of climate, etc.

On my arrival, in May, 1856, I deposited with the Academy, on the 3rd of June, a sealed packet containing full details of my method of treatment, and of the reasons which had induced me to experiment with it. This constitutes very nearly the first ten pages of the following Report. The reason for not at once publishing this note was, that on such a subject, and after the numerous failures experienced by other observers, it was certainly allowable, even if it was not my duty, to distrust myself. Notwithstanding my own conviction that my theory was correct, I had not yet made it a scientific certainty.

Seeking, therefore, to estimate the results which I had already ob-



tained from the point of view of an indifferent observer, I could not conceal from myself their insufficiency, particularly when I remembered that the subject to which I wished to call the attention of practitioners and obtain their concurrence, was CONSUMPTION : and at a period, too, when skepticism in therapeutics is notoriously the predominant sentiment of the professional world. On the other hand, I confess that I was ambitious, as was both natural and right, to finish what I had myself commenced.

The duty of every physician, as soon as he has arrived at a certain practical conclusion, is to publish it, because it interests both the health and life of mankind. For the reason, also, that the existence of his fellow-beings depends upon it, he should advance nothing without due consideration. It is only when the truth of any new hypothesis is firmly established in his own mind, that he should endeavor to influence its adoption by others. A different course results only in discredit, and reacts injuriously upon the cause of science.

This being my opinion, I addressed myself to several members of the faculty of the college, as also to the physicians of the hospitals, asking permission to attend some of their patients, and engaging to observe the following conditions :

Firstly—That I would establish to their satisfaction the safety of my treatment.

Secondly—That I would demand the opening of the note, deposited with the Academy, as soon as the chief of the medical staff thought the results obtained were sufficient to inspire confidence in the real value of my plan of treatment.

Thirdly—That I would abstain, during the period occupied in these trials, from any, except a gratuitous, exercise of my profession.

I proposed this last condition myself, and I have never deviated from it from the day when I commenced my experiments in the hospitals, up to the time when I made known the CURATIVE MEANS which I employ. My remedies also have always been furnished without remuneration from any one. This fact constitutes a sufficient reply to the insinuations of certain English journals.

After I had applied in vain to several of my fellow-practitioners, as well as to my former teachers, M. Charles Bernard, with a degree of moral courage which does him honor, consented to entrust to me some few of his patients in the wards of the hospital *La Charité*. These cases will be spoken of hereafter. Although the results, in consequence of the advanced stages of the disease, were far from being as favorable as I

should have wished, they nevertheless appeared sufficiently remarkable to M. Bernard, to induce a continuance of the investigations.

It was, therefore, agreed that I should choose, at the office of admittance (*bureau central*), a certain number of patients from those which seemed to me to present the most favorable chances for cures. This I at once proceeded to do; but at that very moment an order from the administration was received which forbid M. Bernard to continue longer the trial of my treatment. M. le docteur Briquet, feeling confidence in me, proposed in his turn to entrust me with one of his patients. This is the case numbered as the twenty-eighth. The result of the treatment in this case was unfortunate, for the reasons which I have given in my notes.

In this manner six months passed, and yet the number of cases which I had been enabled to treat in the hospitals, during the whole of this time, amounted to only nine, of which five were in such a desperate condition that it was the height of rashness on my part to undertake them at all.

Professor Bouillaud had also the kindness to entertain my proposal, but a circumstance, unconnected with the subject, prevented me from profiting by the courtesy which he extended to me.

This prolonged trial had, however, shown me one fact: that the hospitals of Paris were, for the most part, designed for the treatment of acute diseases, and that persons suffering from affections of the lungs were seldom admitted, except at a very advanced stage of their disease. It would, therefore, have been difficult, if not impossible, for me to obtain more than one or two curable patients from the list under the charge of any one physician; at the same time this would have almost indefinitely prolonged the time for my investigations. I determined, in consequence, to go to London, in the hope of obtaining in the hospitals especially designed for the treatment of consumption, a sufficient number of cases, especially of those in the earlier stages of the disease, to enable me to arrive at some solution of my hypothesis.

I took my departure for London: but a long sickness, consequent on change of climate, and important domestic matters, prevented me from pursuing my plan until the month of May. At that time I forwarded my request to the board of direction of the Consumption Hospital at Brompton; it was rejected. Some communications, which I addressed to one or two of the medical journals of London, for the purpose of explaining the objects of my proposal and the reasons which influenced my course, served only to draw upon me attacks as unjust as they were illiberal.

In a personal interview with one editor—having for its object certain verbal explanations—I was received in so singular a manner that, taken in connection with other circumstances which happened in my intercourse with some of my fellows, I felt so little encouraged that I determined to leave the country. The treatment I experienced appeared to me all the more unmerited, because, during the time of my stay in London, I neither saw nor attempted to see a single patient. The only thing which can explain this conduct of the English medical press toward me, is my having said to two or three professional gentlemen that I hoped to establish, at my private expense, a dispensary for the gratuitous treatment of consumption. I imagine that, to certain persons, this project appeared incredible ; or that, supposing it to have been really intended, they saw in it a pernicious example.

Convinced, moreover, by a careful examination of my collection of facts, and the general aspect of the whole question, that the theory which this work details, was correct, and believing that I had done all it was in my power to accomplish—since I had recoiled before no sacrifice or personal inconvenience to bring to a satisfactory conclusion that which I had commenced—I determined to offer my work for discussion, even in its present imperfect condition. For this purpose, in July, I returned to Paris, and immediately presented to the Academy the Report which I now give to the public.

If any should ask why I did not wait for the collection of a greater number of facts, before declaring, as boldly as I have done, the truth of what I advance, I reply : that it is not the number of favorable cases, but their *relative agreement*, which gives weight. I will recall to their minds that Jenner proclaimed his discovery of vaccination when it was based upon twenty-three cases only. Finally, I wish also to remind them that every new idea in medicine is not wholly acquiesced in until the foundation upon which it rests has been established by the observations of several independent experimenters ;—the discoverer himself having no other claim in the matter than that of being the first to indicate the facts from which he formed his conclusion, and of fixing the conditions under which each individual should test it, in order to be able to verify for himself the truth of the doctrine propounded.

It is true that I should have preferred not to have presented myself to the public, except well fortified with corroborative proofs, in order at once to command that degree of interest which the subject deserves. I have already given the reasons which prevented me from doing this. If, therefore, there shall be some delay in diffusing the truth, some injury

done to the reputation of our profession, some prolongation to the sufferings of many of our fellow-men, let the fault rest with those who occasioned it. I have already felt, to its fullest extent, the responsibility of my position. If some of those with whom I have had intercourse had experienced this feeling in the same degree, this question would have been decided long ago.

In addition, the cases which I have examined up to this time, subsequent to the presentation of my report, (of which there are now twenty under treatment either in my own practice, or in that of some friend,) all offer such uniform results, and are so much in accordance with my theory, that I have no longer any hesitation in proclaiming, as an established truth, that a SPECIFIC REMEDY AGAINST THE TUBERCULAR DIATHESIS IS FOUND.

In conclusion, I desire to state that all my relations with my French professional brethren have been characterized by generous cordiality on their part. I have often encountered, at the preliminary statement of my theory, a skepticism which was natural, and up to a certain point proper; but from most of them I have received the warmest expressions of sympathy, and on every hand that true courtesy which can come only from those who themselves command respect. The French medical journals have, all of them, published the conclusions at which I have arrived; and several have particularly called the attention of their readers to the subject.

I regret that I can not say that a similar courtesy has been exhibited toward me in England;—for such has not been the case. Time, the beneficent antidote for all injuries done us, will show how much science has suffered by such a course towards me. I wait, confidently, anticipating the period when justice will be rendered where it is due.

I have indulged in these personal details only because they appear in connection with an important question, involving in the highest degree the future position of the healing art; viz., whether we should not allow each conscientious inquirer an opportunity to investigate whatever theories may be proposed in therapeutics, precisely as it is permitted in every other branch of human labor, with such restrictions only as are demanded by a proper regard for humanity, and due care in experiment? The search for the truth in medicine, is of itself so difficult that we should endeavor to avoid, as much as possible, impeding it by obstacles that do not depend upon the investigation of the subject itself.

PARIS, September, 1857.



ON THE IMMEDIATE CAUSE  
AND  
ON A SPECIFIC TREATMENT  
OF  
TUBERCULOSIS.

A REPORT PRESENTED TO THE IMPERIAL ACADEMY OF MEDICINE, PARIS,  
JULY 21st, 1857.

*Gentlemen, Members of the Imperial Academy of Medicine :*

I have the honor of submitting for the consideration of the Academy, the results at which I have arrived with regard to the Immediate Cause of, and a Specific Treatment for, the Tubercular Diathesis.

In the month of June, of last year, the Academy received from me a sealed package, containing an exposition of my views upon this subject. I wished at that time to collect a greater number of facts in support of my discovery, in order to advance nothing which might seem trivial upon so important a matter. Unfortunately, the state of my health compelled an interruption of my labors ; the proofs, therefore, which I herewith present, are far from being as numerous as I could have wished. I nevertheless hope that, meagre as they are, they will not appear unworthy of your attention.

The first idea which I had upon this subject—that which induced me to investigate it—and which, I conceive, furnishes a clue to that mysteriously morbid condition, entitled Tuberculosis, dates from the month of February, 1855, while I was engaged in the practice of my profession at Havana.

Occupied as I have been, since the commencement of my medical career, in researches upon the treatment of phthisis, my investigations led me to believe that the tubercular diathesis depended wholly upon some disturbance of the primordial functions of life ; that, considering the intimate union which exists between all parts of the body, this disturbance must have, as a proximate cause, some important modification in the



process of sanguification. The works of various pathologists, especially those of MM. Andral and Gavarret, the correctness of which has since been confirmed by others, indicated that the variations in the composition of the blood, in pulmonary phthisis, had no peculiar and important relation, as far as its organic elements were concerned. I was, consequently, induced to believe that it was among the inorganic elements of this fluid that we should look for the *special cause* of this diathesis.

On this point the works of chemists were either incomplete or contradictory. I therefore decided that therapeutical experimentation alone could furnish a solution, and accordingly determined in that way to discover, if possible, the influence upon the progress of consumption occasioned by changes in the inorganic elements of the blood.

As the phenomena of this disease, approximating to those of many other morbid states of the body, and especially to chlorosis, appeared to me to be attributable to the loss, or diminution, rather than to the augmentation of some essential constituent, I decided to commence my experiments by increasing, if possible, the quantity of this element; consequently, all that was left for me was to determine what substance I should choose for experimentation.

Medical science furnished a numerous collection of data going to show the influence upon the economy of the greater portion of these chemical elements: as, for instance, iron, sulphur, (whether in the state of a sulphuret, or as a sulphate), and the chlorides. The use of alkaline remedies was an every-day occurrence—all, or nearly all, had been tried in the treatment of tuberculosis; and although each one of them, in its turn, had been extolled, neither of these agents had presented sufficiently well-marked, or uniform effects, to establish its claim as possessing a real curative influence over the disease. I therefore deducted these substances from those with which I designed to experiment, intending subsequently to take them up, should I find it necessary. I decided to commence my investigations by the use of phosphorus.

We know, gentlemen, that this element is one of those most constantly present in the human body, but that is the extent of our knowledge: chemistry not having yet been able to determine the state in which it exists in the blood. Does it enter into its composition in the form of phosphoric acid, or does it exist simply as phosphorus, mixed in an uncombined state with the organic elements? At that time I had never seen the experiments of Dr. Rees, published in the *Philosophical Magazine* for 1848, and the position which he has there assigned this element in the functions of the blood globules; but in addition to this

work, which was then entirely unknown to me, I found the whole subject examined and illustrated very clearly, up to a certain point, by the labors of others who had engaged in therapeutical inquiries.

The phosphates, especially the phosphate of lime, had already been employed in the treatment of rachitis. I knew also that Dr. Beneke had proposed, in 1849, in Germany, the use of it as a specific remedy against the tubercular diathesis, and that other investigators, among whom was Dr. Piorry, had also employed it. On an examination, however, of all the facts connected with its use, I became satisfied that this remedy had not exhibited that immediate and decided action upon the disease which I judged the element to which it was analogous, viz., phosphorus, really possessed.

Is it in its original state, then, that phosphorus has its remedial action? Looking over the physiological effects which this substance is known to produce, as detailed in the *Bibliothèque de Thérapeutique* of Bayle, I was impressed with the idea that the remarkable phenomena of stimulation which he describes, as well as its known action in various morbid conditions of the body, would render it useful as a remedy in consumption.

On the other hand, MM. Barthez and Rilliet, in their work on the diseases of children, after citing two cases of tubercular meningitis cured by Coindet, in the year 1802, by means of phosphorus, assure us that their trials with it have given "no favorable result, not even of momentary duration." Again I was arrested in my inquiries by negative or contradictory reports. On reflection, however, it seemed to me that these apparently opposite results were capable of being reconciled with each other.

In fact, after admitting that the phosphorized element of the blood, or of organic matter, exists in the body in some other form than that of phosphoric acid, it was evident to me that it performed the double part of an eminently combustible substance, and at the same time entered into molecular combination with the other elements of the body, in such a way as to become an integral portion of it. But neither phosphoric acid nor phosphorus can fulfill this double indication. The former is already at its maximum of oxydation: the latter, placed in contact either with the liquids in the stomach, or with any of the tissues of the body, must necessarily, before being absorbed or fitted for assimilation, become transformed into phosphoric acid, or the phosphorous or hypophosphorous acids: compounds next lower in the degree of oxydation.

In the first case, the same results would be obtained as from the em-

ployment of simple phosphoric acid, with the addition of the serious inconveniences resulting from the local action of the phosphorus: in the second case, even allowing that the phosphorus, before being absorbed, should be transformed into hypophosphorous acid, this should at once, on being brought into contact with the alkaline principles of the blood, transform itself into two equivalents of phosphoric acid and one of phosphorous acid ( $\text{Ph}^3 \text{O}^3 = 2 \text{Ph} \text{O}^5 + \text{Ph} \text{O}^3$ ). This last would fulfill the two conditions which I have stated above, but with the disadvantage of presenting, under the most favorable conditions, only a portion of the phosphorus taken into the stomach; while the remainder, by its transformation into phosphoric acid, loses its special power of action. In this view of the case, as the action of this preparation of phosphorus upon the human organism would depend on the quantity of the element capable of oxydation at the moment of absorption, or assimilation, the efficiency and certainty of the remedy would be subject to conditions over which we could have no control: for instance, upon the liquid in which the remedy might be dissolved, the age of that particular preparation, the nature of the substances it might encounter in the economy, the activity of its absorption, &c.

These reasons explain, to my mind, the causes why the preparations of phosphorus have proved so untrustworthy; and why, on the one hand, Coindet was enabled to obtain certain satisfactory results upon employing it in large doses, while MM. Barthez and Rilliet, with much less doses, obtained only unfavorable or negative ones.

Being satisfied that I have discovered the reason for these apparent contradictions, I believe I can logically establish the following double hypothesis: "The tubercular diathesis depends upon a diminution in the system of the phosphorized element, and which, having to act the part of a combustible body, should be found at a lower degree of oxydation than that of phosphoric acid."

After I had formed this mental induction, nothing remained for me but to verify it by facts, and to choose which, among the various combinations of phosphorus with oxygen, viz., the oxide of phosphorus, the hypophosphorous, or the phosphorous acid, I should use. My decision was based upon the following considerations:

The red oxide of phosphorus is insoluble and very inflammable; the yellow variety, although soluble, forms combinations with bases which are very slightly so, and are, by no means, permanent. In addition to this, there was an objection in the difficulty of its preparation under the circumstances in which I was then placed.

I judged that phosphorous acid would have an action much less energetic than hypophosphorous acid, it being less combustible, since it contains three equivalents of oxygen, while the latter is combined with one equivalent only. The salts formed from the former, which are soluble, are those of soda, potassa and ammonia, while *all the hypophosphites are soluble in water*. I therefore chose the hypophosphorous acid, and decided to use it combined with a base. The use of the acid itself, uncombined, seemed to me to offer no particular advantage, since at the moment it is absorbed it enters into chemical combination with the alkaline carbonates of the blood. There was also the additional objection that it was difficult to divide it into doses; for if used, it would be necessary to determine, each time, the degree of concentration of the acid. From preference I chose to commence my experimentation with the hypophosphite of lime, on account of the important part which this base is supposed to play in the system.

But then I was wholly ignorant what were the effects of this salt when taken into the body. The only mention which I found in the works consulted, was, that according to toxicologists generally, (and I believe among them were included Orfila and M. Devergie,) the poisonous effect of phosphorus is to be attributed to its transformation into hypophosphorous and phosphorous acids. It was necessary that I should proceed in the use of this preparation with the greatest caution. I therefore determined to try its effects in the first instance upon myself. For this purpose I commenced by taking half of a grain of hypophosphite of lime, which quantity I gradually increased to six grains at a single dose, without experiencing the slightest inconvenience from its effects.

Convinced by this trial of the physiological safety of the agent, taken at that dose, I tried it for the first time, on the 13th of March, 1855, upon a young woman of nineteen years of age, affected with acute tuberculosis as a sequel to pregnancy. Both lungs were completely infiltrated with tubercles at the commencement of the first stage of softening. There was also enormous distension of the abdomen, with acute pain on pressure, a high degree of fever, extreme prostration—in fact, all the signs of peritonitis in full progress to a fatal termination.

The first day the patient took one grain of hypophosphite of lime; on the third day the dose was increased to six grains; on the fourth day, she could raise herself in bed, and asked for some nourishment. The change in her condition was so rapid, the amelioration of all her general symptoms, the night sweats, fever, prostration, &c., was so



surprising; her appearance, above all, was so much altered for the better, that I was completely astounded. My patient continued steadily to improve every day until the eighth, when she suddenly sank, and died with the symptoms of a perforation of the intestines.

The second case submitted to this treatment was a young lady sixteen years of age, also from Havana, whom I had treated the year previous for the incipient signs of consumption, but which symptoms had yielded to a treatment of inhalations of atropine combined with a strengthening regimen, and residence in the country. In the month of February, 1855, the disease again made its appearance, and resisted all the means previously tried for its relief, as well as the cod liver oil and emetics now used. The unfavorable symptoms developed themselves rapidly, and at the commencement of the month of April she presented the following condition: fever and chills at night, great emaciation, complete loss of strength and appetite, profuse night sweats over the chest and about the neck, a constant cough which fatigued her very much, slightly mucous expectoration with small striæ of blood, and catamenia much less abundant than natural. On percussio, I found a marked diminution of resonance in the upper portion of the right lung, especially noticeable in front; much moist crepitation over the same locality, heard quite distinctly during the cough;—while over the other portions of that lung the respiration was decidedly increased. The left lung appeared healthy; the voice presented nothing remarkable.

The symptoms appeared to me sufficient to justify the diagnosis of tubercles approaching the period of acute softening, and I therefore commenced at once the treatment by ordering four grains each day of the hypophosphite of lime, which soon afterwards was increased to six. Under the influence of this treatment, all her symptoms were rapidly ameliorated. I continued this course with occasional intermissions, which I shall speak of further on, until the close of the month of May; and at the end of June I established, to my own satisfaction, the fact that no traces existed in my patient either of general constitutional disease, or of those physical signs which I had discovered at the commencement of the month of April.

I will not, at this time, occupy the attention of the Academy, but will reserve for another occasion all the details of my other observations, which I hold subject to its examination, and will only present the general result which I have arrived at from the aggregation of my cases.

The whole number of cases treated by me amounts to thirty-five; of



this number, nine were completely cured; eleven experienced an essential amelioration; fourteen died, and one still remains under treatment.

Of the nine cases in the first series, eight were in the second stage, that is, presented tubercles in process of softening; in the ninth, there was a large cavity situated in the superior portion of the left lung. Three cases had acute symptoms; one of these, that of a child of seven years of age, showed also well-marked symptoms of cephalic disease; one alone of these was perhaps doubtful, because the physical signs were confined to the base of the lung. All the symptoms in the cases in the second stage, both rational and physical, entirely disappeared, and the lungs, I am satisfied, were restored to their normal healthy condition.

In the ninth case, that of the patient with the cavity, all the general symptoms disappeared, while the physical signs were also notably improved. There still remains, however, some cavernous respiration, but no râles or crepitation; the cough having also ceased, and the expectoration being scarcely perceptible and perfectly transparent. A year after the discontinuance of treatment, he wrote to tell me that his health continued unchanged, and that he felt himself well enough to undertake the drudgery of a brisk business. I have also heard from two of my other patients, whose health remains perfectly established. From the others I have no information.

Of the eleven cases which I have spoken of as simply relieved, four were in the third stage, and presented large-sized cavities. In one of the patients these cavities occupied portions of both lungs. In view of the results obtained from these cases, and especially from the well-marked and prolonged amelioration which existed in two of them which had cavities, I have every reason to believe that unless some complication had intervened, both would have recovered under a continuance of the treatment. The seven other cases presented a well-marked alleviation of symptoms, which was maintained without interruption during the course of treatment. One case alone, in which there were some abdominal complications, presents an exception. In one case, where there was a cavity occupying a large portion of one lung, the diarrhœa which existed disappeared, and did not again make its appearance as long as the treatment was continued.

I wish now to speak of the fourteen cases which resulted fatally. Before commencing the treatment, I looked upon them as nearly hopeless. In six, there were cavities either of immense size or several in number; in three of them, in both lungs at the same time. One other was, in addition, attacked with peritonitis. Eight were affected with

diarrhoea, and most probably with ulceration of the intestines; in two, the tubercular mass occupied more than a half of each lung; in three, it extended through the whole of one lung; in one, the upper lobes of both lungs were affected; and finally, in one, the tubercles were confined to the apex of one lung, but there existed, in addition, a severe laryngial affection. Seven of these patients were in such a condition that they died in one month after the commencement of treatment, four others within two months and a half, while three only lived over three months.

This simple statement is sufficient to show that nearly all these patients were in such a condition, when treated by me, that they could do no less than bring discredit upon my theory, and upon myself, as its originator: notwithstanding which, I deemed it my duty, under the circumstances, to lay aside all personal feeling, as I was anxious to investigate the difference, if any existed, between the results obtained under the climate of Europe, and those which I had noted under the tropics,—where, I am satisfied, several of these cases would have experienced a more decided, as well as persistent, amelioration.

I will now pass to a consideration of the proper doses to be given, and the physiological and therapeutical effects of this new remedy. I have employed the hypophosphites of lime, of soda, of potassa, and of ammonia.

The last two were tried but a few times only, for their action seemed different from that of either lime or soda. The first two seemed to be of very nearly equal efficacy. I have used them either alternately, in the same case, or one wholly, to the exclusion of the other, without discovering any perceptible difference in the result. One of the cases of acute phthisis, which recovered, was treated entirely by the hypophosphite of soda. The most effectual dose I have found to be twenty grains, taken at a time, once each day. Generally, I commence with ten grains, and gradually increase from day to day by from two to four grains. In some few cases, I have given as much as a scruple and a half, repeated twice each day. Every ten or fifteen days, I suspend the treatment for a day or two, and then again recommence. In the cases of two children, both under seven years of age, I employed the salts at a dose of from one to two grains each day.

The physiological effects, proved both by trial on my own person and on my patients, are of two classes:

There is a well-marked increase of nervous force, often manifesting itself from the first day, accompanied with a most remarkable sensation of strength and health. At the same time the nervous troubles, if there

are any, disappear, as well as all functional disturbances, such as oppression of the stomach. The appetite increases often at the most extraordinary rate. The evacuations from the bowels become regular and more abundant. The night sweats, if there are any, cease; and the sleep becomes calm and profound. The effect produced upon the nutritive functions, are equally decided: the features will change completely, often in the space of a few days; acquiring both fullness and color.

Sometimes the teeth and hair show this nutritive stimulation. In one patient whom I treated at *La Charité*, a boy seventeen years of age, of a feeble, lymphatic constitution, who was cured of a tuberculous infiltration of the whole of the right lung—in the first stage, but in process of softening at the apex—the beard commenced growing rapidly two months after placing him under the treatment. A young girl placed under my charge by Dr. Lemaire, in a fearful state of marasmus, with cavities occupying more than a half of one lung, experienced not only decided amelioration of all the symptoms, but during the treatment her four wisdom-teeth made their appearance.

A treatment of six weeks by the hypophosphite of potassa, completely dissipated all the symptoms in an old man sixty-five years of age, for two years a sufferer from the most violent attacks of asthma, depending upon a chronic bronchitis. He was so reduced that he could scarcely visit me even in a carriage, but rapidly acquired the strength and appearance of a man of fifty. About fifteen days after the cessation of treatment, he was attacked with a carbuncle on the neck, for which he was treated by Dr. Michon. His recovery was long and difficult, and yet he was finally fully restored to health. I think that this was more than a simple coincidence.

All these peculiar symptoms seem to depend on, or at least correspond with, a decided stimulation in the powers of sanguification. The quantity and color of the blood increase so rapidly that I do not hesitate to say that the preparations of hypophosphorous acid are the most valuable blood-creating agents known. Every case has shown, within a very brief time after the commencement of treatment, well-characterized symptoms of plethora; and I have every reason to believe that, in some cases of advanced disease, this state would stimulate the development of that pulmonary inflammation, unhappily so frequent and fatal among consumptives.

Hemorrhoids will bleed under its influence, for the first time, or recommence if once the hemorrhage has been stopped. In one case I made them bleed at pleasure, for the experiment was tried at three dif-



ferent times. One patient was troubled by marked symptoms of cerebral congestion. Four had an abundant epistaxis. In one alone was there hemoptysis, and this but of one day's duration, which stopped immediately on the cessation of treatment.

Finally, in all females in whom the disease was not too far advanced, the catamenia became more abundant and highly colored. I have not noticed that this remedy possesses any effect over the functions of generation other than that which might be attributed to its general stimulation of the system; but this is a point which I have not yet examined.

The following are the principal therapeutical phenomena which I have noticed in the patients who have submitted to this treatment. When the remedy is given in the proper doses, the patient feels on the second or third, and sometimes from the first day, a decided increase of strength and appetite. I am satisfied, by repeated and careful trials upon myself, that these phenomena are by no means chimerical. The pains over the chest, which many patients feel so acutely, either cease, or very considerably diminish within a few days. The night sweats, however copious they may have been, almost always disappear at the end of seven or eight days. When, however, the intestinal canal is affected, and there is persistent diarrhœa, this is not always the case; the sweating then remains obstinate, particularly toward the close of the disease.

At the same time the strength and appetite return, the patient gains flesh; the features, especially after the first fortnight or three weeks, presenting a striking improvement. The influence of this treatment upon the cough and expectoration, has been equally rapid, and has often caused their disappearance or alleviation within a very short space of time, frequently in even two or three days. In this respect there is, however, in the various cases, a very decided difference, which has appeared to me to have an intimate relation to the extent and gravity of the lesions as shown by auscultation and percussion.

There is one fact which I wish especially to be noticed; for I think it is universally true, that all else being equal, the local lesions are relieved by this treatment with much greater rapidity when the disease is of more recent date. For instance, in many patients of the first series, physical signs more marked and covering a greater space, have disappeared, while they have obstinately remained, or were much more slowly alleviated, in others of the second series, although at the commencement they were much less formidable. In all cases this difference coincided with the difference in the time the disease had existed, and it seems to me can be explained in no other way.

The intestinal troubles have proved generally rebellious to treatment when they possess a certain degree of severity, and a persistent diarrhoea has always brought a fatal termination.

The fever has given a more various result, according as it seemed to depend upon the general diathesis, or the pulmonary lesions themselves. From what I have now stated, I think I am justified in drawing the following conclusions, upon which the Academy is requested to pass its judgment :

THE IMMEDIATE CAUSE, OR AT LEAST ONE ESSENTIAL CONDITION OF THE TUBERCULAR DIATHESIS, IS THE DIMINUTION IN THE SYSTEM OF PHOSPHORUS WHICH IS FOUND IN IT IN A FORM CAPABLE OF OXYDATION.

THE SPECIFIC REMEDY FOR THIS DISEASE CONSISTS OF A PREPARATION OF PHOSPHORUS WHICH PRESENTS THE DOUBLE CHARACTERISTIC OF BEING IMMEDIATELY ABSORBED OR ASSIMILATED, AND WHICH AT THE SAME TIME IS AT THE LOWEST POSSIBLE DEGREE OF OXYDATION.

The hypophosphites of soda and lime, up to this time, seem to me the most completely to unite these requisites.

This treatment has an immediate effect upon the tubercular diathesis, so called, and causes the disappearance, with a really marvellous rapidity, of all those symptoms which generally typify its existence. Whenever the morbid deposit which is at the same time the special result and the pathological evidence of this diathesis, is of recent date ; whenever the softening has only just commenced, and proceeds slowly, *the tubercles are absorbed and disappear*, leaving no trace. When the deposit is of an older date, or when the softening has reached a more advanced degree, it will sometimes remain in spite of the treatment ; in which case the result of the disease will depend upon the anatomical characteristics of the lesion, and above all upon its extent, and the presence or absence of complications.

Numerous trials made by me to remedy the local condition, by a direct medication by means of the inhalation of various substances, have, up to this time, produced no satisfactory result which could not be attributed to the improvement consequent upon the specific treatment. Nevertheless, if we can now arrest the progress of tubercularization, there is every reason to hope that we shall ultimately discover a rational and efficacious treatment of tubercles already deposited, especially of the inflammatory complications. This, however, will become much less necessary as the experience of each shows, which there is every reason to believe it will, that these hypophosphorous remedies are also *prophylactics* to tuberculous diseases.



The hypophosphites have a double action on the system : on the one hand they *increase the principle*, whatever it may be, *which constitutes nervous force* ; on the other hand, they are *the most powerful blood-generating agents*, infinitely superior to any thing which we are now in the habit of employing.

In consequence, it seems as if they could be employed to advantage in all those cases where it is wished to increase in the system either the one or the other of these two properties.

These hypophosphorous preparations will occupy, without doubt, the most important place in the list of therapeutical remedies, as far as their powers of relieving nervous prostration, or any disturbance of the blood-generating processes are concerned.

For this double character, they should be employed in nervous diseases, in cases of paralysis (where their use is not contra-indicated by the existence of congestion), in protracted convalescence, and in the adynamic period of acute diseases. It would be well to try them in the cold stage of cholera, and in the last stage of yellow fever, etc.

It is time, gentlemen, that I should close my remarks. I am well aware how prone we are to deceive ourselves,—how easy and pleasant it is to be deceived,—as to the results of our own labors ; therefore, I do not hesitate to acknowledge the incompleteness of the paper which I have now the honor of presenting to you. I simply ask for it your consideration. It is the consciousness of its imperfections that has induced me to defer its presentation until this day.

May it prove for the well-being of the human race and for the benefit of science, that your judgment, and that to be given by experience, shall confirm the results which I have announced.

# NOTES

OF

## CASES SUBMITTED TO THIS TREATMENT

### FIRST SERIES.

#### CASES WHICH RESULTED FAVORABLY.

##### CASE NO. I.

DONA ISABEL DE S——, 16 years of age, born at Havana, unmarried. This patient first consulted me in the month of April, 1854, complaining of a slight, though persistent cough, which had annoyed her for about two months, with perceptible loss of flesh. There was a moderate expectoration of a limpid and transparent fluid. There had never been any hæmoptysis, but she had lost both appetite and strength. She was also troubled with excessive leucorrhœa. The quantity as well as the color of the catamenia had diminished at each of the last two menstrual periods.

On examination, I found a decided rudeness of the respiratory murmur just below the right clavicle, with prolonged expiration, but no crepitation even during a cough, and without any diminution of the sound under percussion, and with very slight vocal resonance.

In the supra-scapular-fossa of the same side, there was merely a slight feebleness of the respiratory murmur.

I ordered the treatment to consist of inhalation of air, charged with moisture by its passage through water, in which had been dissolved a grain of *atropine* to each ounce, a system of treatment which I was experimenting upon at that time. In addition to this, she was ordered a preparation of iron, a strengthening diet, consisting principally of roast meats and milk; walks early in the morning, and a residence in the country. Under this regimen, but above all perhaps on account of the favorable weather, her appetite and strength returned; her catamenia increased both in abundance and color; the cough and expectoration ceased entirely; and the rudeness of the respiratory murmur at the apex of the left lung, gave place to the softness of the natural respiration. There remained, however, still a little dullness of the respiratory murmur in the supra-scapular-fossa.

This favorable state of things continued during the whole summer and early part of the winter; but in the month of February, 1855, my patient commenced anew to cough, to grow thin, and to lose her strength and appetite. On the 4th of March, I made the following note of her condition: Countenance pale and dejected; well-marked loss of flesh; eyes languishing, and, as it were, swimming in moisture; cough frequent, especially in the night; slight expectoration of a transparent, but not mucous fluid; no night sweats, but only a slight moisture of the

body when in bed; no fever in the evening; catamenia at the last period less abundant than usual; very little appetite; says she is very feeble, and appears anxious about her condition.

On examination of the chest, I found in the right supra-scapular-fossa well-marked diminution of the respiratory murmur, but without crepitation or prolonged expiration. The resonance over the back was about the same on each side. In front, it seemed a little diminished under the right clavicle, where I also found a decided rudeness of the respiratory murmur, with slightly increased sound of the voice. The expiration over the same spot seemed notably prolonged.

I recommended the former treatment, viz.: inhalation of atropine; iron reduced by hydrogen, one grain each day; roast meats and a milk diet, together with a moderate amount of exercise on foot each day.

*March 15th.*—My patient does not find herself improved; her cough is more frequent, and fatigues her excessively; the moisture of the body at night has increased; her appetite and strength have diminished still more. She was ordered to continue the same treatment, and in addition to take to-morrow morning as an emetic two grains of tartarized antimony, dissolved in three wine glasses of warm water, to be divided into three doses, and taken at intervals of a quarter of an hour.

*March 17th.*—The emetic acted very powerfully; she rested better last night, and has coughed less. This morning she feels a little more appetite, but complains of a pain in her throat and a sensation of constriction over the whole chest; she is also, as she says, very weak. Continue the inhalations and the iron.

*March 18th.*—Has passed a rather wakeful night; has coughed a little less than during the few preceding days, but has been grievously troubled with night sweats. She complains of being excessively weak, and has no appetite whatever; the expectoration is a little more abundant; she still has the pains over the chest; the stools are natural; she has some little leucorrhœa. To continue the inhalations, and the iron increased to two grains each day.

*March 19th.*—Still continues in the same condition; her strength is still more diminished, and she has perspired copiously during the past night. Auscultation shows the same signs as at the first examination; but there is some slight crepitation just below the right clavicle. The dullness seems to be more decided and extended, and can now be found equally as well over the back. To continue the same treatment, and in addition to take each day a table spoonful of cod liver oil.

*March 20th.*—Condition as before—to continue the same treatment.

*March 26th.*—Coughs very frequently, which prevents her from sleeping. I find her very much alarmed because she has seen a few streaks of blood in her expectoration. Her catamenia, which have appeared within a few days, have been much less abundant than ordinary, and also deficient in the proper color; the leucorrhœa has much increased; the night sweats continue excessive, especially about the head. Stop the iron, and take every day two table spoonfuls of cod liver oil.

*March 27th.*—Same condition.

*March 29th.*—She has again raised blood, and this time in much greater quantity: in consequence, she is very much alarmed and dispirited; there are some mucous sputa in the midst of the limpid expectoration; the night sweats have been still more troublesome, and her cough fatigues her much during the night.

Continue the same treatment, and order another emetic of antimony to-morrow morning.

*March 31st.*—The paroxysms of vomiting have fatigued her very much; she complains more particularly of pains in the throat and chest, notwithstanding which she has slept better, and coughed less during the night. The expectoration is more abundant, and the amount of mucous increased, but without any show of blood.

*April 1st.*—Same condition: she complains of the sensation of constriction in the chest which the act of vomiting causes her; the perspiration was profuse last night; the expectoration contains a little more mucous; the cough still fatigues her very much, and she has very little appetite; her strength has diminished since the commencement of the preceding month. Continue the cod liver oil.

*April 3d.*—There are still occasional streaks of blood in what she raises. Last evening she had a chill, followed by an increase of fever. She has perspired a great deal while sleeping, and the cough has kept her awake the greater part of the night. Continue the same treatment.

*April 4th.*—Last evening she had another chill, followed by fever; the sweating has been excessive, especially about the head; there are some streaks of blood in the expectoration. The patient is greatly prostrated, sad, and dispirited, and has almost lost her appetite. Stop the cod liver oil.

*April 5th.*—Made a careful examination of her case, and found the general condition to be such as stated in the preceding notes. On percussion, I found a diminished resonance below the right clavicle over a space of three fingers breadth in width; the same condition was also found behind, but in a less decided degree. On the left side the resonance in front as well as behind seemed normal. Auscultation showed moist crepitation in the same region, which did not disappear while she coughed. Over the rest of the right lung the respiration was more increased than over the left. The voice seemed a little resonant, but only in a slight degree. The left lung shows nothing abnormal.

*Diagnosis.*—Tubercles at the summit of the right lung at the stage of acute softening.

Encouraged by the trial on the subject of the twenty-first observation, I determined to employ the hypophosphite of lime, and therefore ordered her, to-day, four grains of that salt.

*April 6th.*—Last evening she had a slight chill, followed by heat, but she finds that she has coughed less and slept better; otherwise she is in the same condition, except that she seems a little less prostrated, and there is no blood in the expectoration. Treatment, five grains of the hypophosphite of lime.

*April 7th.*—Last evening she had a slight sensation of cold, followed by heat. She says that she has perspired less, and slept better; she seems less sad, and the cough less frequent than day before yesterday. Her mother and sisters say that they think she has sensibly improved. Treatment, six grains of the hypophosphite of lime.

*April 8th.*—My patient finds herself much better. She says that the night sweats have been less; that she has slept well; feels herself stronger; that her cough has much diminished, and that her appetite is improving. Treatment, seven grains of the hypophosphite of lime.



*April 9th.*—Her countenance looks infinitely better; she is almost gay; says that she has slept very well; that her cough awakened her only twice during the night; the expectoration is diminished, and contains only a few mucous clots, swimming in a transparent liquid, but without traces of blood. Treatment, eight grains of the hypophosphite of lime.

*April 10th.*—Has sensibly improved; says that she perspires but very slightly; coughs very little, and sleeps well nights. This morning she went out of doors for a walk, and took breakfast with considerable zest. Gave nine grains of the hypophosphite of lime.

*April 11th.*—Continues to improve. Ordered ten grains of the salt, to be continued at that dose for the following days.

*April 15th.*—My patient tells me that she does not sweat at all; that she coughs very little, and raises scarcely any thing. Her countenance has completely changed; her features have filled out; she is cheerful and animated. She has a good appetite; her evacuations are natural, and the leucorrhœa has almost disappeared.

*April 26th.*—Has continued to improve from day to day. Within the past few days her catamenia have appeared as abundantly and naturally colored as before her sickness. During this period her cough has slightly increased, but her appetite and strength have continued good; the expectoration is very slight. The hypophosphite of lime has been taken every day since the last note, except yesterday and to-day.

On examination, I found the crepitation at the summit of the right lung is much less than at the time of my last examination on the 5th of this month; it seems to me that the dullness has also diminished, and that the exaggerated respiratory murmur at the inferior portion of the lung has almost disappeared.

*April 27th.*—Her cough has returned to what it was before the access of her catamenia. It consists of but little more than one or two coughs at morning and night. Ordered her to commence again with the hypophosphite at the dose of six grains.

*May 8th.*—The treatment has been continued as at last date. Since the 1st of this month the dose of the medicine has been carried to ten grains. My patient would hardly be known for the same person, so much has she improved in the past month. Nearly all the general symptoms have disappeared, and nothing remains but a slight cough, principally in the morning, but without expectoration. She has nearly regained her usual amount of flesh, and her healthy appearance.

Percussion shows that the dullness of the right side has nearly disappeared; the crepitation is very slight, as well in front as behind; she can take a long walk every morning without being in the slightest troubled for breath. Suspend treatment for two days.

*May 11th.*—Same condition. Commence again with the salt at a dose of ten grains.

*May 25th.*—My patient has not coughed any for the past fifteen days; there is no expectoration whatever; she is stouter than before her sickness, and says that she never felt so well in all her life. She now eats more than any other member of the family. Suspend treatment for two days.

*May 27th.*—On examining my patient I find that the general symptoms have disappeared for the last fifteen days. As to the physical signs, I find still behind,



in the right supra-scapular-fossa, little feebleness of the respiratory murmur, especially during inspiration; but the crepitation which was heard both in this region, and under the clavicle, has completely disappeared.

Return to the former treatment, and take the salt in a dose of ten grains. This she continued until the 1st of June, when by my directions she went to reside in the country.

At the close of the month of June I saw her again; she was then fatter and in better health than she had ever been. Auscultation showed me no difference between the right lung and the left.

My patient continued to enjoy perfect health during the whole of the following winter. On my departure from Havana in April, 1856, she was making preparations for her marriage, and presented the appearance of the most perfect health. I made another examination at this time, and found the respiratory sounds natural on both sides.

Any remarks upon this case will be superfluous: but I assure the reader that however much astonished or even skeptical he may be, he can not be more so than I was myself.

I had evidently discovered, and had at my control, a new and powerful method of treatment. But I asked myself—will it fulfill all the indications which I wish from it—all which, at the outset, it seems to promise me? Perhaps I am only deceiving myself, and this result, which I have seen, is only the coincidence of a fortunate train of circumstances. We shall see, further, how well my other experiments answered these questions.

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## CASE NO. II.

Miss C—, six years and a half old, born in Canada, but living in Havana for the past two months, was brought to me for the first time on the 7th of February, 1856, by her mother, who gave me the following particulars:

Her child commenced to cough in October of the year before; the cough was dry and recurred in paroxysms. At the same time she lost her appetite and flesh, and became much depressed in spirits. She was attended by an uncle, who ordered her cod liver oil and other remedies; but the cough, as well as the other symptoms, becoming more aggravated, he advised her parents to carry her to Havana, where they arrived in December. For a short time after her arrival, her cough seemed to mend, but the change was very slight. There had never been any expectoration.

The child continued to grow weaker each day until her visit to me, when she could scarcely walk, and required to be held constantly in the arms of some one. She had almost wholly lost her appetite; complains much of her head, and says that it pains her in front; her disposition has become capricious and variable; she changes suddenly from sadness to laughter, and often bursts into fits of violent weeping; she perspires very freely, especially about the head and neck; she sleeps badly at night, and in the morning will often start up suddenly, uttering piercing cries, after which she will relapse into a species of syncope, become quite

pale and cold. This last phenomenon has only developed itself since her arrival at Havana, but within the past two weeks it has occurred four or five times.

On examination, I found the abdomen neither tumefied nor tender on pressure. Latterly she has been almost constantly constipated, and only has an evacuation when she has taken a purgative of magnesia.

The face of my little patient was pale and sad. Her eyes were pretornaturally large and deep set, with a haggard, wild stare, and the pupils much dilated. She either heard with difficulty the questions which I put to her, or obstinately refused to answer. She told me that her head pained her, and carried her hand to her forehead to indicate the locality.

Her mother stated that her skin was alternately burning and cold. I found it, by examination, warm. The pulse was 110. She has never passed any worms.

On examining the chest, I found above and below the clavicle on the left side a sensible dullness, and over the same spot a marked diminution of the respiratory murmur, but no râles or crepitation; over the rest of that side, the respiration was slightly exaggerated; there was nothing peculiar in the cough or voice; on the right side resonance and the respiration appeared normal.

*Diagnosis.*—Bronchial, and probably cerebral tubercular deposit. I commenced her treatment by ordering half a grain of the hypophosphite of lime.

*February 8th.*—This morning she again awoke suddenly from her sleep, shrieking, after which she became pale and seemed to lose consciousness. I was sent for, but was out. In other respects she remains the same. Continue the treatment.

*February 9th.*—Yesterday she seemed less depressed, and passed a tranquil night. This morning she awoke quietly, and breakfasted better than usual. Ordered the dose to be increased to three-fourths of a grain.

*February 10th.*—Perspired less last night; awoke calmly; yesterday had a natural evacuation; her face is less haggard, her disposition less sullen than a few days ago.

*February 11th.*—Coughed much less yesterday, and during the night perspired very little; her appetite is better, she is stronger, and can even walk a little when carried into the open air. Increase the dose to one grain.

*February 13th.*—This morning she awoke suddenly, crying, and with a frightened air; after which she became pale, but did not lose consciousness. Condition about the same, but seems stronger.

*February 15th.*—All her symptoms continue to amend; has nearly as good an appetite as before her sickness; the cough has diminished; she has scarcely any night sweating, and does not now complain of her head. The treatment was suspended for two days.

*February 17th.*—Continues to improve. This morning she started suddenly from her sleep with a frightened air, but did not cry out, and although she became slightly pale, did not lose consciousness. Dose reduced to three-fourths of a grain.

*February 18th.*—Getting better and better; is quite lively, and laughs occasionally; coughs very little, and has merely a moisture of the skin at night; has a natural evacuation nearly every day; walks about freely; she has filled out, lost that sad look, and from her appearance, would never be judged to have been sick. Increased the hypophosphite to one grain.

*March 4th.*—The change in the appearance of the child is so great as to attract the attention of every one who saw her before the commencement of treatment.

All the symptoms—cough, sweating, feebleness, etc., have disappeared, and her mother says she has never seemed better in her life. From this time the dose of the salt was increased to a grain and a half each day.

*March 8th.*—Examined her chest, and found still a little feebleness of the vesicular breathing at the apex of the left lung; but the resonance, on percussion, seemed to me about equal on each side. Suspended the treatment for two days.

*March 10th.*—[The patient was attacked with a severe dysentery, from over-indulgence in fruit, and a cold taken during the night. Under proper treatment, during which the hypophosphites were discontinued, she recovered in a few days.]  
—TRANS.

*March 14th.*—Says she is well and wishes to get up. Yesterday had a natural evacuation; no pain over abdomen; no fever; pulse 100. Gave soup, and rice and milk.

*March 16th.*—Sleeps well; does not cough, and has no sweating.

*March 17th.*—Auscultation shows still a little feebleness of the respiratory murmur at the apex of left lung. Resonance equal on the two sides. Commenced again the use of the hypophosphites at a dose of three-fourths of a grain, which I increased by the addition of a quarter of a grain each day until I had reached two grains.

*March 22d.*—Seems perfectly well. Her mother assures me that she has never seemed so strong and lively since she was born. Her appetite is excellent. By auscultation I found still a little feebleness of the respiratory murmur at the apex of the left lung; but much less than a short time ago, and perhaps not more than the normal difference between the two sides. The treatment was continued up to the 26th of the month. I did not see her after this, because, being necessary for me to leave the city, her mother decided on returning to New York. I have had no further tidings from her.

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### CASE NO. III.

Don F—— P——: 42 years old; native of Havana. This gentleman, whom I have been attending nearly a year, visited me on the 9th of June, 1855. He has suffered for several years. There is a large-sized cavity occupying nearly two-thirds of the left lung, surrounded, especially at its inferior side, with tubercles in process of softening.

The disease has been slow, but constant, in its progress. The weakness, difficulty of breathing, cough, and expectoration, have little by little increased. I have tried various remedies in his case, but without obtaining any satisfactory result. The treatment from which he has seemed to derive the most relief, and has been employed the longest, consists of inhalations of atropine, after the plan spoken of in the first case, with small doses of iron and the tincture of digitalis.

He has taken at various times cod liver oil, as well by my direction, as before his coming to me, by advice of one of my friends; but the use of this occasioned, after a short time, severe hemoptysis, which compelled him to discontinue it. I wish here to state that this remedy has never seemed to produce, in warm climates,

any advantageous effects which I have sometimes observed from its use in Europe. Few persons can continue its use beyond a few days,—it often causing either severe hemoptysis, or such a trouble in the intestinal canal as to forbid its use. I am satisfied, by repeated trials, that these phenomena do not, in the slightest degree, depend upon the character of the oil used.

Encouraged by the results of the use of the hypophosphites in the other cases, I finally decided to employ them in this case also. The condition of the patient is now as follows:—Great emaciation; his face pale and peaked; considerable weakness; bad appetite; digestion slow and laborious; no diarrhoea; cough frequent and annoying, often preventing his sleeping at night; expectoration mucous-purulent and copious enough to three-quarters fill a tumbler in twenty-four hours. Has night sweats, especially over chest and neck; is obliged to sleep mainly upon the right side, as he cannot rest at all upon the left, nor remain upon his back longer than a few moments.

Nearly every three or four weeks he has a more or less profuse hemorrhage lasting four or five days; the two last times to an alarming extent. He was formerly troubled with hemorrhoids, but they have disappeared for the past three years.

On auscultation, I discovered the following conditions:—On the right side, both in front and behind, the resonance and the respiration were about normal, though the latter may have been slightly increased. On the left side, and at about an inch below the clavicle, there was a decided diminution of resonance. Over the same spot there was moist crepitation, and lower down a cavernous râle and pectoriloquy. Sound of the heart increased, but with nothing abnormal about it. Behind, in both scapular-fossæ, there were marked cavernous râles, with great vocal resonance. The resonance, on percussion, seemed about the same as upon the right side. Behind, the respiration was increased at the base of the left lung. Ordered him to take four grains of hypophosphite of lime, which was to be increased each day after by one grain.

*June 15th.*—My patient feels stronger; has more appetite; slept last night upon his back, and for a short time upon his left side. Ordered the dose increased to ten grains.

*June 20th.*—Is decidedly improved, and although very thin, has lost his appearance of suffering and prostration. His appetite, he says, is better than it ever was before; has no night sweats; sleeps as he pleases, upon his back, or either side; coughs much more rarely; the expectoration has diminished more than a half, and is more transparent. Suspended the treatment for two days.

*June 30th.*—Commenced the use of the hypophosphite on the 23d, at the dose of six grains. Yesterday he had a slight hemoptysis, it being about the time it has usually occurred. In consequence, I suspended the treatment. The hemorrhage was merely a few streaks of blood in the matter expectorated, but my patient is much alarmed, as the last one was so profuse. In order to tranquillize him, I ordered ten drops of the ethereal tincture of digitalis three times a day.

*July 2d.*—The hemorrhage has ceased, and the patient continues to improve. By auscultation, I found the mucous râles much less abundant, and mixed with sibilant rhonchus. There is also a slight sound, as of friction at some distance.



*July 3d.*—Ordered the dose at six grains.

*July 18th.*—My patient feels better than at any period since the commencement of his illness. He coughs and raises very little; has no sweating; has a good appetite, and is much stronger. Suspended treatment for two days, and then commenced with the dose at six grains, which was gradually increased to ten.

*July 20th.*—My patient says that he passed a little blood yesterday at stool. Increased the dose to fifteen grains.

*August 3d.*—Lost more blood yesterday. Ordered the salt at the dose of twenty grains.

*August 4th.*—The hemorrhoids bled again yesterday. They protrude and trouble him very much. Suspended treatment, and ordered an injection of infusion of rhatany.

*August 5th.*—Bleeding has diminished.

*August 6th.*—Bleeding has ceased.

*August 10th.*—Commenced with the hypophosphite at six grains, which was increased by a grain a day to ten grains.

*August 14th.*—Discovered, by examination, the following condition:—On the right side, the resonance and respiration perfectly normal. On the left, marked dullness below the clavicle, over a space of an inch in width. Over the same spot, intense cavernous respiration, pectoriloquy, a sound of dry rubbing, but no râles. On the back, in the supra-scapular-fossæ, the same cavernous respiration, but more distant from the ear than in front. There is resonance of the voice, but no crepitation.

*September 25th.*—Continued the treatment steadily up to this time. My patient has gained flesh, although still quite thin; his appetite and strength are good; has had no more hemoptysis, and has only one slight coughing fit in the morning, and raises a little transparent mucous; sleeps well on either side, or upon the back.

Auscultation shows in front, in the upper part of the left lung, intense cavernous respiration, with pectoriloquy, but no râles or crepitation. Behind, the same phenomena is manifested, but less marked; over the rest of that side, the respiration is slightly rude. The right side seems normal.

My patient passed the following winter with no perceptible change. He was attacked with a slight bronchitis, which seemed to have its location in the cavity and base of the left lung. Since sibilant and ronchus râles were heard there, I continued an expectorant treatment, and in the course of about two weeks it wholly disappeared. In March, 1856, I examined him anew, and found the lungs in the same condition. Since then he has written to inform me that his health remains unchanged.

#### CASE NO. IV.

Dón Juan C——; 29 years old; born in Havana, married.

*November 6th, 1855.*—This gentleman called upon me for a slight spitting of blood, which he has noticed for the past three weeks. About a fortnight before

this hemorrhage, he commenced to cough; has also lost strength and appetite, and sweats much at night. Two sisters have died of consumption.

On examination, I found the following to be his condition:

Nothing peculiar in his general appearance; his cough is quite troublesome; the expectoration slight, containing some mucous and a quantity of blood, sufficient, perhaps, to fill half a wine-glass in the course of the day. He is very feeble, so that he has not been able for the past three weeks to go out to attend to his business. The resonance, on percussion, is about equal on the two sides, as well in front as behind, but perhaps slightly diminished in the left supra-scapular-fossa.

By auscultation, I found at the apex of the left lung, both in front and behind, moist crepitation which did not disappear when coughing. At the lower front portion of the same lung, the respiration was increased in a marked degree. Nothing peculiar in the sound of the heart. The respiration was normal over the right side.

*Diagnosis.*—Tubercles at the apex of the left lung, commencing to soften.

Ordered at once six grains of the hypophosphite of lime and sulphuric acid in sweetened ice water.

*November 7th.*—A few streaks of blood only in the sputa; complains of colic having troubled him in the night. Suspended the acid and ice; gave eight grains of the hypophosphite of lime.

*November 8th.*—Coughs, sweats, and raises less. Gave ten grains of the hypophosphite.

*November 24th.*—My patient attends to all his out-door affairs; feels as well as ever; has a good appetite; no sweating; coughs and raises very little. Suspended treatment for two days.

*November 28th.*—Commenced the treatment in a dose of ten grains. Examined his chest, and found the crepitation much diminished; the other signs as at the first examination.

*January 15th, 1856.*—At the examination, with my utmost care, I could discover no difference between the two lungs. The respiration seemed as normal on the left as on the right side. My patient continued perfectly well up to the time of my departure, three months afterwards.

## CASE NO. V.

Maria R—: a negress; 19 years old; unmarried; free, and supporting herself by washing.

*January 2d, 1856.*—This patient came to consult me for a cough which she has had for about three weeks. During this time she has lost much flesh, and become so very weak that she has been compelled to stop washing; she has fever at night, and sweats a great deal, especially about the head. At the last period, menstruation was much less abundant than natural; she has very little appetite, but no diarrhoea; the cough is frequent and dry; what little is raised, consists of a clear fluid, entirely salivary in appearance, with no trace of mucous; she is so troubled in breathing that she can scarcely walk.

Her face, and especially her general appearance, presents in a high degree that

look which seems to be a peculiarity of all consumptives, but which is much more striking in colored people than the whites.

On examining her chest, I found over the front of the left side, a diminution of resonance under the clavicle, and at the same point a marked rudeness of the respiratory murmur, with marked resonance of the voice. Behind, in the left supra-scapular-fossa, dry crepitation, especially perceptible at a deep inspiration. These signs, added to the severity of the general symptoms, enabled me to form, without difficulty, the following diagnosis:

Tubercles deposited at the apex of the left lung, just commencing to soften.

Ordered immediately eight grains of the hypophosphite of lime.

*January 3d.*—Feels better and coughs less. Increased the dose to ten grains.

*January 4th.*—Less fever and sweating last night; this morning has a little appetite. Gave twelve grains of the hypophosphite.

*January 5th.*—Night sweats still more diminished and cough lighter; this morning feels stronger, with better appetite. Ordered fifteen grains of the salt.

*January 13th.*—She informs me to-day that the night sweats have ceased, that she eats well, and feels sufficiently strong to again commence work; she coughs very little: requested her to remain quiet for a short time longer.

I found, on examination, a little dullness under the left clavicle, and marked rudeness of the respiratory murmur, although it seems to me much improved. There is still resonance of the voice. The crepitation which I had noticed over the back has disappeared. Suspended treatment for two days, when it was again commenced with the dose at ten grains.

*February 2d.*—Has been working for the past two days; has no cough; has gained flesh and strength; has no shortness of breath, even when working hard, her catamenia have become as profuse as natural. I found, by auscultation, the respiration on the left side almost normal, but on percussion, still a little dullness below the left clavicle, with slight vocal resonance. Increased the dose to fifteen grains, at which it was kept until

*February 20.*—When an examination showed no perceptible difference between the two sides. I then ceased my visits.

*March 12th.*—Has returned, because she has been troubled for the past four or five days with very slight sweating: she also coughs a little; otherwise is well.

Found on examination a few sibilant râles over both lungs. Ordered some slight remedies, and by the 22d all the symptoms had disappeared.

*April 3d.*—A few days before my departure I visited her, and found her perfectly well.

## CASE NO. VI.

Mr. M——: 22 years old; born in the United States; unmarried.

*March 15th, 1856.*—The patient gave me the following history: Commenced coughing in October last; in November he raised, for several consecutive days, a quantity of blood; has taken various remedies without relief. In January, by the advice of his physician, he came to Havana for the benefit of a change of climate, but has experienced no improvement from it; has become more emaciated

since his arrival, and completely lost his appetite. His mother died of consumption.

His present condition is as follows: Moderate degree of emaciation; face pale; great weakness and depression of spirits; cough frequent, especially nights and mornings; sweats at night, principally about the neck and chest.

Expectoration is slight, and composed of perhaps a dozen muco-purulent sputa; has little appetite; digestion good; evacuations natural; gets out of breath easily, especially while walking, or going up stairs.

Percussion of the chest showed a diminished resonance on the left side, extending from the clavicle to the level of the fourth rib, but most perceptible below the clavicle. Behind there is dullness, principally in the supra-scapular-fossa. On the right side the resonance was normal.

Auscultation showed on the left side, in front, great feebleness of the respiratory murmur. Under the clavicle, for a space of the width of a finger, there was none whatever. Behind, on the same side, in the supra-scapular-fossa, especially upon its inner side, there was moist crepitation; in the sub-scapular-fossa, it also existed, but slighter; the respiratory murmur was quite feeble at the base of the lung; the respiration, both in front and behind, was much increased over the right side, which seemed normal.

I noticed over every part of the left lung great weakness of the respiratory murmur, as well as increased resonance of the voice; but this was much less in degree than I expected.

The sounds of the heart were somewhat stronger, but otherwise offered nothing peculiar.

*Diagnosis.*—Tubercles in the first and second stages, occupying a great extent of the left lung.

At this time I had but a small amount of the hypophosphite of lime left, and as I was intending to leave for Europe in fifteen days, I was forced to order a continuance of the treatment prescribed by his physician in the United States; at the same time, giving him every degree of encouragement in regard to his case. On my explaining the reasons which called me to Europe, the parents of the patient decided to accompany me there, in order that he might continue my treatment.

On his arrival at Paris, on the 10th of May, he was in the following state: The crepitation increased in the sub-scapular-fossa; the general constitutional disturbance greater; cough worse, and expectoration more abundant, with night sweats. Emaciation had advanced rapidly, and he had become very feeble and despondent. Commenced with the hypophosphite of lime at the dose of ten grains.

*May 11th.*—Increased to twelve grains.

*May 12th.*—Cough, expectoration, and night sweats lessened. Increased to fifteen grains.

*May 30th.*—The treatment has been continued at the same dose. There is now no expectoration whatever, and but little cough in the morning; no sweating; a good appetite; strength and spirits completely restored.

His lineaments have changed so completely, that he would scarcely be known for the same person. From being pale, he has acquired a full, fresh color.

His chest shows the same signs as at the commencement of the month, except that the crepitation has diminished in the sub-scapular-fossa.



Suspended treatment to June 4th, and then commenced again with the dose of twelve grains.

*June 19th.*—Patient has not coughed for the past fifteen days; raises in the morning a mucous clot, not larger than a filbert; was never stronger than at present; is still short-winded, but much less so than at first; has gained flesh.

Found, on examination, the crepitation of the sub-scapular-fossa had completely disappeared, but that a little still remained in the supra-scapular-fossa. Respiration on the right side is heard better, both in front and behind; there is yet a difference in regard to the left side, especially below the clavicle, but it can be heard everywhere.

The treatment was suspended for four days, and then again commenced at the dose of twelve grains, which was successively increased, two grains at a time, until twenty grains were given.

*August 9th.*—Find a sensible alleviation of the local symptoms; the constitutional ones having long since disappeared. The respiration is heard better over the whole lung. In the sub-scapular-fossa but slight crepitation can be heard, and that only under the influence of forced inspirations. Under the left clavicle, the respiration has always been more feeble than on the right side. Suspended treatment for six days and then commenced again with fifteen grains.

*August 30th.*—All crepitation has disappeared in the left supra-scapular-fossa; and upon the inner side, where it was heard most freely, it sounds as if there was a slight cavity; no vocal resonance; no cough whatever; the patient can take long walks without inconvenience. From this cause, and for certain other reasons, all treatment was suspended until

*October 28th.*—The patient seems about the same, except that he has lost his appetite a little. Commenced the treatment again with a dose of ten grains.

*November 4th.*—General health good; still feebleness of the respiratory murmur, below the left clavicle; no crepitation over the back; no cough or expectoration. Increased the dose to twenty grains.

*December 14th.*—Found, on examination to-day, no difference between the two sides, unless it might be a slight diminution of the respiratory murmur, below the left clavicle; no vocal resonance.

Up to this time, he did not seem to have been affected by the cold. I wished him to pass the winter at Paris, in order to test the permanence of his cure, but he preferred going to Egypt. He left in a few days, and since then I have not heard from him.

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## CASE NO. VII.

Victorine J.—: 25 years old; boot-stitcher; born at Melun; but has lived at Paris for the past twelve years; unmarried.

*November 24th, 1856.*—Catamenia regular, but less abundant at the last period than ordinarily; has had a cough every winter for the past six years, but none in summer until the three past ones; once raised blood which continued a month.

One of her sisters died of consumption, at the age of 14; now coughs a great

deal, so as often to cause vomiting; raises a little mucous, but no blood; has profuse night sweats; is too short-winded to walk, and at the slightest exertion her heart palpitates violently; is troubled with constipation; has little appetite; sleeps badly; is emaciated; and her face is sunken and pallid, but with a hectic flush.

Nothing abnormal, either in front or behind, was discovered on percussion. The respiration over the whole of the right lung is more feeble than on the left side. At the base there is slight crepitation; over the inferior third of the lung, behind, the moist crepitation is well defined, especially during a cough; but there is no resonance of the voice.

The diagnosis in this case offered some doubts. The moist crepitation was limited to the base of the right lung, but then there was a great diminution of the respiratory murmur, both in expiration and inspiration, over the whole of it; and there were no sibilant râles. On the other hand, although there had been no hemoptysis for some time, the intensity of the constitutional symptoms, their rapid aggravation, the loss of strength and appetite, the state of anæmia which had supervened in so short a time, and the copious night sweats, could none of them, in my estimation, be attributed to a simple bronchitis. Her own antecedents, and those of her family, were also in favor of the existence of tubercles, in the first stage, at the summit of the right lung, with congestion of the base. Ordered the patient to take ten grains of the hypophosphite of soda.

*December 15th.*—All the constitutional symptoms have disappeared. No crepitation can be heard, but the respiration is still feeble in front, under the clavicle.

*December 20th.*—Has returned to work. Catamenia natural.

*January 12th.*—Examination shows no difference between the two sides. Says she feels better than ever before.

Have not seen her since the last date.

Judged by itself, this case would be of little value; but taking into consideration the antecedents, I think I am borne out in the diagnosis made: nevertheless, I give it with the greatest reserve.

## CASE NO. VIII.

Joseph Coupier: optician; 26 years old; born at Montmartre; living in Paris; unmarried. Entered *La Charité* under M. Charles Bernard, June 21st, 1856. The patient says his parents are alive and well; states that fifteen days before his entrance he began to cough, and feel weak and short of breath; was troubled with a constant headache, with bleeding at the nose; has lost flesh enormously; no appetite; sweats at night. On the eighth day after the commencement of these symptoms, he began to raise blood, which continued for five days.

Since his entrance into the hospital, the hemorrhage has never been suspended for eight consecutive days, and he has become still weaker; is covered at night with a cold perspiration, especially on the chest and hands.

The treatment prescribed by M. Bernard consisted of cod liver oil, with opiates and astringents. Under this his appetite slightly improved.

*August 9th.*—Examination shows dullness under the right clavicle, for a space

of about an inch. Respiration on the same spot is a little more feeble than on the right side. Under the inner side of the supra-scapular-fossa there is dullness, and some pain from the percussion. At the same point the ear can detect moist crepitation, and rude respiration; also great resonance of the voice.

On the left side of the hack, at the apex of the lung, the expiration is prolonged, and in the sub-scapular-fossa there is moist crepitation. Over the rest of the lung the voice and respiration are normal. Pulse 76; respiration 20.

*Diagnosis.*—Tubercles in the first and second stages at the apex of the right lung; and probably tubercles at the apex of the left lung.

*August 10th.*—The hemorrhage, at about two drachms each day, continues.

Commenced with the hypophosphite of soda, in a dose of four grains.

*August 11th.*—Increased the dose to ten grains.

*August 14th.*—Have been myself sick for the past two days, so that the treatment was suspended. On the night of the 12th, a most violent hemorrhage set in, which has continued up to this time. I judged it prudent, therefore, to suspend the administration of the hypophosphite, not because I thought it dangerous,—for I believe it useful, in doses of four grains, in arresting the bleeding—but on account of the great responsibility in case it should happen to terminate fatally. He was ordered ice, astringents, etc.

*August 19th.*—Only a few stræ of blood now observable in his sputa. Last evening, he complained of a sharp pain in the right knee, which is excessively sensitive to the touch, especially over the internal ligament. There is, however, neither redness nor swelling. Pulse 72; respiration 32.

*August 28th.*—Before commencing the treatment again, M. Bernard examined the patient with me. I copy the notes made by the assistant, M. Guillot:—

Pulse 72; respiration 32. Mucous expectoration, but not very abundant; is very weak; has not been able to raise himself for two days; cannot sleep nights; sweats excessively, especially about the head and neck; has very little appetite; tongue natural; no diarrhoea; has one evacuation each day; rests upon the right side, from inability to lie upon the other.

The physical signs are: dullness under the right clavicle, with great rudeness of the respiration; moist crepitation over the two lower thirds of the lung, especially after a cough; marked resonance of the voice; rudeness of respiration over nearly the whole of the left lung, with crepitation, but less marked than on the right side; diminution of resonance, on percussion, over nearly the whole of the right side of the hack, particularly in both scapular-fossæ, with moist crepitation. This, which exists also along the spinal column, is especially noticeable after a cough. Under the axilla it is even more decided, so as to approach to a fine sub-crepitant râle. The respiration is rude over the whole of the left lung, but particularly in the sub-scapular-fossa. In the supra-scapular-fossa there is some crepitation.

By this it will be seen that the disease has made rapid progress since the 9th.

Ordered five grains of the hypophosphite of soda.

*September 1st.*—Feels stronger, sweats less, and has a better appetite. Pulse 60, perspiration 24.

Gave five grains of the hypophosphite of soda.

*September 2d.*—Increased the dose to eight grains.

*September 3d.*—Increased to ten grains.

*September 6th.*—Has been constantly improving; the cough and expectoration have almost disappeared; there is no sweating; he sleeps and eats well; is getting stronger, and can rest well on his left side. Increased the dose to fourteen grains.

*September 9th.*—Continues to improve, but complains of a severe pain in the supra-seapular-fossa, on bending his body. Reduced the dose to ten grains.

*September 13th.*—Increased to twelve grains.

*September 14th.*—Says that he ate some cabbage, which disagreed with him; rose from bed, but felt so cold that he was obliged to return to it. Reduced the dose to ten grains.

*September 15th.*—Increased the dose to sixteen grains.

*September 16th.*—Ordered twenty grains.

*September 19th.*—Says that his hair has been falling out very much for the last three weeks. Suspended the treatment.

*September 21st.*—Ordered five grains of the hypophosphite to be given.

*September 23d.*—Asked permission to go out for a walk.

*September 24th.*—Walked more than a mile yesterday.

*September 25th.*—At my request, M. Bernard made a second examination with the following results: Diminution of resonance on percussion, under the right clavicle, for a distance of more than an inch; rude respiration, with vocal resonance in the same place, but no crepitation; lower down there is a spot where there is diminution in vesicular breathing, but no crepitation. On the left side there is some rudeness of the respiratory murmur; the resonance over the back on percussion, is about equal on the two sides. On the right side, in both scapular-fossæ, there is slight feebleness of the respiratory murmur, but no crepitation or resonance of the voice.

It will be seen by this condition of the patient what a change for the better there has taken place since the commencement of treatment. Ordered five grains of the hypophosphite.

*September 30th.*—For the past two days he has coughed more; last night the attendant found him feverish; with a pulse at 96; with mucous râles over the superior third of the right lung. Gave eight grains of the hypophosphite.

*October 2d.*—Less fever; is otherwise improving.

*October 4th.*—Was obliged to suspend treatment upon all the patients confided to me by M. Bernard.

*October 8th.*—An examination was to-day made by M. Axenfeld, who forwarded me his result, viz.: some crepitation on the right side in front; behind it is more marked, and almost reaching a cavernous râle; over the same point there is diminished resonance of the voice.

*October 16th.*—The patient entered the hospital St. Louis, under the charge of M. Briquet. He states that since giving up my treatment he has lost flesh and appetite, and has sweated and coughed more.

He was examined by M. Briquet, who found the following symptoms: in both scapular-fossæ, on the right side, gurgling; a little cavernous respiration, and dullness. Nothing abnormal on the right side, in front.

The left lung seemed healthy, both over the front and back. Ordered ten grains of the hypophosphite of lime.



*October 17th.*—Increased it to twelve grains.

*October 20th.*—Has been steadily improving. Decreased the dose to eight grains.

*October 23d.*—Pain and difficulty in breathing in the left supra-scapular-fossa. Omitted treatment.

*October 24th.*—Says the pain is greater. Ordered eight grains of the hypophosphite to be given.

*October 25th.*—Says the pain has been so great that he could not sleep, and has been obliged to sit erect all night: otherwise feels well enough to work. This I recommended him to do, for I suspected that his pain arose from a state of plethora, and that it would be dissipated by exercise: a fact which I had noticed in several other cases.

*October 30th.*—Having left the hospital, he walked to my house to visit me. Gave eight grains of the salt.

*November 6th.*—The plethora, or fullness (dyspnoea) has disappeared for several days. Cough is much less; no expectoration; appetite good; no sweating, and has gained flesh. Increased the dose to twenty grains.

*November 7th.*—Says he has rambling pains over the whole body. Suspended treatment.

*November 11th.*—Was obliged to call upon him, as he could not leave his house. Found sub-acute rheumatism in both knees. There was swelling, redness, pain to the touch, high fever, with a foul tongue.

*November 25th.*—Has recovered, under treatment, from his rheumatism. Ordered ten grains of the hypophosphite to be given.

*November 28th.*—Coughed and perspired a great deal last night. Changed to twelve grains of the hypophosphite of soda.

*November 29th.*—Ordered twenty grains of the same salt.

*December 2d.*—Was obliged, from causes independent of his sickness, to suspend treatment.

*December 6th.*—Gave twenty grains of the hypophosphite.

*January 10th.*—Before leaving Paris I made another examination, and found his condition as follows: Some difference in the respiratory murmur under the left clavicle from that on right side; but this is scarcely greater than is often found in the normal state. With this exception, no one could tell which of the lungs had been affected. The respiratory murmur and resonance were everywhere normal. The patient is in better flesh than ever before, has gained his full strength, can take long walks without fatigue, and mount to his room in the sixth story without loss of breath.

This case seems to me not only one of the most remarkable, but also the most important, from the fact of the symptoms having been satisfactorily determined before the commencement of treatment, by several persons, none of whom were in favor of my method. The rapid progress of the disease; the sudden arrest of all the symptoms under the treatment; their commencement on its suspension, and their sudden disappearance when it had been again renewed; the attack of acute rheumatism, all certainly showed some active agency in the treatment. Besides, the patient was in the best state to show the effects of this therapeutic agent. The disease was just commencing, and although acute, had produced no permanent disturbance. The constitutional symptoms were intense, yet there appeared to be

no complications; and lastly there was no uncertainty in the diagnosis. I now regret exceedingly not having remained at Paris a month longer, in order to have shown the change to those who had seen him when first treated. I can not say whether he is now well, or had a relapse during the following winter: for notwithstanding he might be looked upon as cured, I think it was important to watch over his health, and for several months afterwards to occasionally continue the use of the remedy.

### CASE NO. IX.

Eugene Maitre: 17 years old; jeweler's apprentice; unmarried; living in Paris; entered *La Charité*, June 22d, 1856.

His mother, whose case is given at No. 15, has had her lungs affected ever since his birth. Three months ago, after catching cold, he began to cough and raise blood in small quantities. About a fortnight ago he had an attack of fever which lasted for twenty-four hours without cessation. Since then he has lost flesh, strength, and appetite, and perspires much at night; raises very little, and has no diarrhœa. At first he was placed by M. Bernard upon a treatment of cod liver oil, under which he seemed to improve.

*July 4th.*—The following is the present condition of the patient: Feeble, lymphatic constitution; not much cough or expectoration; night sweats; no fever; appetite and digestion good; diminution of resonance on percussion under the right clavicle; on the left side it is normal; on the right side, in front, the respiration is feeble over the whole lung, with considerable vocal resonance, especially below the clavicle; on the left side respiration is increased and the voice normal. Over the whole of the right back, there is notable dullness; the respiration is quite feeble in the supra-scapular-fossa, with moist crepitation; over the rest of the lung the respiration is feeble, and the voice resonant; over the left back, the respiration and resonance seem about normal.

*Diagnosis.*—Tubercular infiltration, in the first stage, of the whole right lung, with induration of its tissues: commencement of softening at the apex.

These symptoms, and the diagnosis, were confirmed by MM. Charles Bernard, Brochin, and Lehlé. M. Bernard added, that the intensity of the vocal resonance made him suspect a cavity at the level of the spine of the scapula.

*July 5th.*—Commenced the treatment by ordering eight grains of the hypophosphite of lime.

*July 6th.*—Increased to ten grains. To-day M. Empis examined the patient and formed the same diagnosis.

*July 8th.*—Gave fourteen grains.

*July 9th.*—Increased the dose to fifteen grains.

*July 10th.*—Increased to twenty grains.

*July 30th.*—The patient has been steadily improving; no cough or expectoration. Changed the hypophosphite, and ordered twenty grains of the soda salt.

*August 6th.*—M. Bernard examined the patient and found all the constitutional symptoms dissipated. Under the right clavicle a little more dullness was perceived

than on the right side; the respiration in front about equal on the two sides; slightly greater resonance of the voice on the right side; over the left back, slightly increased respiration, and also of crepitation in the supra-scapular-fossa; elsewhere the respiration normal; some vocal resonance on a level with the spine of the scapula. In consequence of these ameliorations, he acknowledged that the patient showed a notable change for the better.

*August 18th.*—Left the hospital and went to work.

*August 19th.*—Suspended the treatment.

*September 1st.*—Commenced again with ten grains of the hypophosphite of lime.

*September 7th.*—Suspended the treatment for eight days.

*September 22d.*—Continues to improve. Ordered twenty grains of the hypophosphite of soda.

*September 29th.*—Suspended treatment.

*October 1st.*—Ordered eight grains of the hypophosphite of lime.

*October 6th.*—No treatment.

*October 8th.*—Gave twelve grains of the hypophosphite of lime.

*October 16th.*—The patient was examined by M. Bernard, who found, at the right apex, in front, a decided vocal resonance, with slightly prolonged expiration; nothing abnormal over the back; over the left front, respiration normal, but behind he thought he discovered slight crepitation, which neither I nor M. Potain were able to hear. It is possible that the excitement of the patient may have influenced, in some degree, the respiration.

Continued the treatment for the sake of security, and gave eight grains of the hypophosphite of lime.

*October 18th.*—Have just learned from the father of my patient, who is himself consumptive, that his brother died of phthisis eighteen months ago; that his wife has coughed for ten years, and that her mother died of consumption.

*November 27th.*—Examined the patient, and could discover no difference between the two sides either by percussion or auscultation. Stopped treatment.

In January, a few days before my departure from Paris, I saw the patient again, and found a complete absence of all signs of consumption. As to his general health, it not only seems to be perfectly good, but in appearance he is robust, and of a ruddy countenance.

## SECOND SERIES.

CASES IN WHICH THERE WAS AN ALLEVIATION, BUT NO DECIDED RESULT, IN CONSEQUENCE OF CESSATION OF TREATMENT.

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## CASE NO. X.

MRS. T——: 26 years old; born in the United States, but living in Cuba for the past year; husband is living.

*March 6th, 1855.*—This lady has been sick for the past eighteen months. At the outset, she began to cough, and once or twice raised blood. She has lost flesh, strength, and appetite. She was recommended to go to a warm climate, and came to Havana, where she has been living in the vicinity until a month ago. There has been no perceptible change for the better since her arrival. None of her family have been consumptive.

For the past six months her cough has increased, the expectoration become more abundant; the sweating is profuse, especially about the head and neck; her catamenia have been suspended for four months.

I now find the following to be her condition: Muco-purulent expectoration, composed of a transparent fluid in which there are yellow lumps of mucous, some of which sink to the bottom in a vessel of water; great debility, and emaciation; very little appetite; bowels constipated; the face pale and sharp; the eyes hollow; the attitude peculiarly characteristic.

By percussion, I discovered a decided difference between the two sub-clavicular regions; the sound is the clearest on the left side, behind; the resonance is about equal on the two sides.

Auscultation showed moist crepitation, occupying the superior third of the right lung, both in front and back; over the rest of that side great exaggeration of the respiratory murmur, especially marked in front, with decided resonance of the voice; on the left side, both under the clavicle and in the supra-scapular-fossa, there was also crepitation, but no vocal resonance.

*Diagnosis.*—Tubercles in the second stage, at the summit of both lungs, far advanced in softening, especially on the right side.

The patient has taken cod liver oil several times, but with no decided benefit. I also ordered it, but in a few days was obliged to discontinue its use, as it was so repugnant to her. I then tried a variety of remedies, such as inhalations of iodine, atropine, the alkaline carbonates, and sulphuret of lime, none of which seemed to produce the slightest good. For a few days the bicarbonate of potassa seemed to diminish the cough, but it occasioned such a diarrhoea that I was obliged to discontinue its use.

*April 28th, 1855.*—Commenced with four grains of the hypophosphite of lime.



*April 30th.*—Patient says she sleeps better, her appetite is improved, and she coughs less. Increased the dose to six grains.

*May 3d.*—Has been riding out for two days past; is much stronger; has a good appetite; sweats very little. For two days past she has had a regular evacuation.

*May 15th.*—Increased the dose to ten grains. All the constitutional symptoms have disappeared; the appearance of the patient has changed, so that she would scarcely be known; there are no night sweats; the cough has diminished, as well as the expectoration; the appetite and strength are good, and the bowels regular.

*May 29th.*—The improvement has continued to this time. Fearing to remain through the summer, on account of the yellow fever, and feeling, besides, almost well, she has decided, against my earnest wishes, to return to the United States.

Examination shows less crepitation on the right side; under the left clavicle it has entirely disappeared, but can still be heard in the supra-scapular-fossa.

What would have been the final result of this case? I have no hesitation in believing that had she remained at Havana, the tubercles would have been slowly eliminated, and that perhaps she would have entirely recovered. I have had no news from her; but I fear that the change of climate, and suspension of treatment, have induced afresh the symptoms which were disappearing, and that the disease followed its fatal course.

## CASE NO. XI.

Don Carlos B——: 42 years old; born at Havana; married. His disease commenced four years ago, during the winter, with cough, and slight bloody expectorations. Since then it has slowly, but surely, progressed. He was attended by me during several months, two years ago, at which time I found several tubercles at the summit of the left lung, slowly softening; emphysema at the base of the same lung, with contraction of the aortic orifice.

*June 5th, 1855.*—The patient tells me that his strength has been constantly diminishing, the cough is more frequent, and that he has paroxysms of asthma nearly every night; he is very short of breath when he walks, so that he has been compelled to give up his employment; has not had any hemoptysis since the outset, but has lost much flesh, and his appetite entirely; he perspires at night, principally about the head and neck; the expectoration is muco-purulent, in great quantity, and mixed with much bronchial sputa.

His appearance is that of a man attacked with severe heart disease. He is emaciated; his eyes are hollow; his lips purple, and his breathing anxious and noisy.

Percussion shows dullness over the upper third of the right lung, both in front and behind. Below this spot, the resonance is, on the other hand, increased, and the same idiosyncrasy exists over the whole of the left side.

By auscultation, I found, below the right clavicle, and in both scapular-fossæ, moist crepitation, having almost the character of mucous râles. Below this the respiration, both in front and behind, is quite feeble, and also over the whole of the

left side where it is mixed with a few sibilant râles. The expiratory breathing on both sides is quite loud; while, on the contrary, the inspiration is weak.

The first sound of the heart is replaced by a harsh *souffle*, [a blowing sound,] followed by a softer one, which, however, does not completely hide the second sound. These sounds have their maximum at the base, and are prolonged in the direction of the arch of the aorta. The pulse is small and irregular.

The diagnosis of this case was somewhat difficult: but after reflection, I made up my mind that the only way of explaining both the physical and constitutional symptoms, as well as the progress of the disease, was by adopting the following definition:

Tubercles in the second stage, occupying the whole of the apex of the right lung, with emphysema, and constriction of the aorta.

Commenced treatment with the hypophosphite of potassa, in a dose of four grains; gave also ten drops of ethereal tincture of digitalis three times a day.

*June 19th.*—Paroxysms of asthma have diminished in intensity and frequency; in every other respect is improving. Increased the dose to ten grains.

*August 27th.*—Looks better in the face, but his lips are still purple; is well enough to attend to his business. On examination, I found the inspiratory murmur still very feeble, with prolonged increased expiration. The sounds of the heart still accompanied with a double *souffle*. The crepitation seems greater at the summit of the right lung, and sound still more like a mucous râle.

*December 27th.*—My patient has been absent to this date. The physical signs are now about as they were in August, but the constitutional ones are less satisfactory. With the coming of cold weather, his cough has increased, his breathing become more embarrassed, the asthma resumed its intensity. Commenced again with the hypophosphite of potassa, which was continued up to my departure in March, 1856.

At this date, the paroxysms of asthma were quite rare, his cough was slight, his strength and appetite good. The tubercular deposit at the apex of the right lung was slowly softening; while the symptoms of asphyxia, evidenced by the blue color of his lips, and the rapidity of his respirations, were more increased. The sounds of the heart were about as before. There is no œdema.\*

The only observation which I have to make upon this case, and one which I have made in several others, is, that the hypophosphite of potassa seems to have a special influence in increasing the expectoration, and hastening the softening of the tubercles. In this respect it resembles the salt of ammonia. The constitutional effects seem about the same as those of the hypophosphites of lime and soda.

## CASE NO. XII.

Dña E. R.—: 19 years old; born in Santiago de Cuba; married. Visited me first at Havana, on

*December 1st, 1855.*—She then gave me the following statement: Her father

The infiltration of *serum* into the tissue of the lung, carried to such an extent as to diminish its permeability to air. Dropsical swelling produced by the accumulation of serous fluid in the interstices of the areolar texture.

and mother both died of consumption: she has no brothers or sisters; has always been feeble and delicate. Two years ago, as her friends were alarmed about her health, she went to Europe, and passed a year with benefit. She married about twelve months ago, and a few months after, began to feel the first signs of her disease. This began with a slight cough, to which were soon added the other symptoms. For four months she has taken cod liver oil without any benefit, and for the past two months has vomited each time she has taken it. Her catamenia have been suppressed for five months.

Her attitude shows great prostration; the emaciation is extreme; is very pale, and can scarcely walk; her voice is almost lost, but more from extreme debility than from disease; she has each day a severe chill, followed by cold, which lasts often for two hours, and is succeeded by heat; cough frequent, which fatigues her very much, and prevents her sleeping; there is scarcely a half hour in the day or night without a paroxysm; the expectoration profuse, muco-purulent, and mixed with mummular\* sputa, which would fill three wine glasses in the course of the day. She is constipated, has no appetite, and sweats profusely at night about the chest and neck.

I found, by an examination of the chest, on percussion, great resonance, which seemed about equal over both sides, but most perceptible in front. Auscultation showed cavernous râles occupying the whole of the left lung, both in front and behind. In one part of it free respiratory murmur could be heard. The same râles occupied about equally, in front and back, about a third of the upper part of that side. It was only in the inferior third that the respiratory murmur could be heard, and then very exaggerated and rude. The voice was so feeble that I could discover nothing peculiar from it. The cough, in some places, sounds cavernous.

*Diagnosis.*—Tubercles in the second stage, and several cavities occupying the whole of the left lung and the apex of the right.

*December 10th.*—Began treatment with five grains of the hypophosphite of lime.

*December 14th.*—Has a slight diarrhoea. Ordered eight grains of the lime salt, and ten grains of bismuth.

*December 19th.*—Diarrhoea has stopped; has a little fever each evening. Increased the dose to fifteen grains.

*December 26th.*—Has gradually improved. Have been gradually increasing the dose, so that now she is taking thirty grains of the hypophosphite of lime twice each day, morning and night.

*December 27th.*—Was troubled in breathing; vomited twice in the night. Suspended treatment.

*December 29th.*—The difficulty in breathing has disappeared. Ordered twenty grains of the hypophosphite to be given.

*March 8th, 1856.*—My patient has taken, with slight intervals, twenty grains of the hypophosphite each day. She has been steadily improving. Her husband being obliged, by his business, to return to Santiago de Cuba, has decided to take her back with him.

Her condition at departure was as follows: general appearance much improved;

\* An epithet applied to *sputa*, in phthisis, when they flatten at the bottom of the vessel, like a piece of money.

is stronger; has a better appetite; digests her food well; has no fever nor night sweats; the cough and expectoration are slight.

Auscultation and percussion showed over the whole of the left lung great weakness of respiration, with slight friction sound, and marked resonance of the voice, but no râles.

Under the right clavicle, in both scapular-fossæ, there was dry crepitation, mixed with sonorous rhonchus, which disappeared for a moment, after a cough. There was also vocal resonance.

This case has impressed me more than any I have treated. In presence of such lesions, I could not hope for a cure; but on seeing the improvement continue for more than three months, the constitutional and local signs disappear, I had every reason to regret the interruption to the treatment.

She died about six weeks after her departure from Havana. But as to the subsequent symptoms I know nothing. I heard that she was found dead in her bed.

### CASE NO. XIII.

Pauline L.—: 15 years old; carpet worker.

*July 26th*, 1857.—This patient was sent to me by Dr. Lemaire, who at the same time addressed to me the following note:

“I send you the young woman about whom I spoke to you this morning. Unfortunately, since I have seen her, the disease has made fearful progress. The cavity, which was limited at the beginning of the winter to the apex of the right lung, has now extended below the nipple. There is dullness over the whole anterior part of the right side, the cavernous respiratory murmur being very great. She is much emaciated; has slight fever at night only; coughs constantly, especially at night, and cannot sleep.”

On examination, I found all these symptoms, with the following additional ones: Great rudeness of respiration over the whole lung, both in front and behind; some sibilant râles over the back; excessive night sweats; the catamenia suspended for nine months; appetite bad; has had diarrhœa up to two months ago; extreme weakness; pulse 112. Ordered at once eight grains of the hypophosphite of lime.

*September 1st*.—No night sweats; less cough and expectoration; good appetite. Increased the dose to ten grains a day.

*September 16th*.—Increased the dose to fifteen grains.

*September 25th*.—For the two past days has had hemoptysis. Increased the dose to twenty grains.

*October 8th*.—Decreased to twelve grains.

*October 13th*.—No headache nor fever; no night sweats; no cough, and but little expectoration; appetite and strength good; pulse 120. Decreased to eight grains.

*October 18th*.—Took a very long walk yesterday. Changed to the hypophosphite of ammonia, at the dose of eight grains.

*November 26th*.—Up to this time she has remained in about the same condition.

In December I lost sight of her. At this time she was living under most unfavorable circumstances, being obliged to watch with a younger sister who was burned.



If this young girl had lived in a different, above all, in a climate less liable to produce inflammations of the respiratory organs, I do not hesitate to say that I think the result might have been favorable. The treatment lasted four months, during which time she was seen once or twice by M. Lemaire, who will bear witness to the great improvement which took place.

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### CASE NO. XIV.

Madame G——: 31 years old; living in Paris.

*September 30th, 1856.*—Commenced coughing four years ago; her mother died of consumption three months ago; has lost flesh, especially during the past six months; her appetite is bad; has been taking cod liver oil without benefit; has had no diarrhœa, but has lost her strength; has no night sweats, but some fever in the morning; the menstrual discharge is excessive, so as to constitute sometimes a hemorrhage; there is ante-version of the womb, but no leucorrhœa; is generally constipated; has a persistent, painful cough, with copious, slightly mucous expectoration; pulso 84.

*October 1st.*—The patient was seen by M. Charles Bernard, who, as well as myself established the following facts:

Diminution of resonance, on percussion, in the right supra-scapular-fossa; feebleness of the respiratory murmur in both scapular-fossæ; moist crepitation over the same region; slight resonance of the voice; in front, under the right clavicle, slight dullness; feebleness of the respiratory murmur; moist crepitation.

*Diagnosis.*—Tubercles at the summit of the right lung, especially behind, in process of softening.

*October 2d.*—Commenced with eight grains of the hypophosphite of lime.

*October 7th.*—Feels much better; all the symptoms—the expectoration, fever and cough—have much diminished; is stronger, and has a good appetite. Increased the dose to twelve grains.

*October 13th.*—Formerly, at the approach of her catamenia she suffered intensely below the clavicles. This time she did not know of their approach until their appearance.

The treatment was followed until the end of November, and then was suspended up to January, 1857. When examined at this time, she was found in a much more satisfactory condition, as far as concerned the constitutional symptoms, than before the commencement of treatment.

The local symptoms were about the same: or rather, I should say, very slightly relieved, for it seemed to me that there was less crepitation.

At this time I left Paris, and saw no more of her.

It is to be noticed, in this case, that the disease was of long standing, and that, as far as prognosis was concerned, it had been sufficiently slow to give hopes of a favorable issue; but on the other hand, the severity of the lesions precluded the belief of any very prompt modification under the influence of the treatment.

The fact held good in this case, as in all others, that the time required to produce a favorable change was inversely, in ratio, to the anterior duration of the disease. In this respect, it much resembles case No. 16.

## CASE NO. XV.

Henri Maitre: 35 years old; jeweler's clerk; married; living at Paris.

His brother died of consumption eighteen months ago; is the father of the patient mentioned as case No. 9.

*October 17th, 1856.*—Began to cough four months ago; for the past eighteen months his appetite has diminished; he has coughed much and lost flesh; his strength is good, but he loses his breath easily when walking, or mounting the stairs; has no night sweats.

Was examined yesterday by M. Charles Bernard, who discovered the following additional points: For the past month he has given up drinking, and finds his appetite in consequence a little increased, but he still loses flesh; no diarrhoea; food agrees with him; has one evacuation each day; sleeps well enough, but is often awakened by his cough; profuse expectoration of mucous.

Over the right front there is sensible dullness, on percussion, for an inch below the clavicle, with resonance of the voice, and rude respiration. Over the right back, a diminution of resonance, on percussion; moist crepitation in both scapular-fossæ; vocal resonance. In the left sub-scapular-fossa there was crepitation, but no resonance of the voice.

*Diagnosis.*—Tubercles in the second stage at the apices of both lungs. Ordered ten grains of the hypophosphite of lime.

*October 18th.*—Increased the dose to twelve grains.

*October 27th.*—Cough and expectoration less; appetite and strength better; increased to sixteen grains.

*October 29th.*—Increased to twenty grains.

The great degree of improvement which this patient had exhibited was continued through the whole of the month of November. On the 28th of that month I made an examination, and found that on the left side there was no longer either crepitation or vocal resonance in the sub-scapular-fossa, but the respiration was a little obscure on the right side. There was dullness under the clavicle, and behind I found slight crepitation in the sub-scapular-fossa. The patient, through the whole of his treatment, which lasted six weeks, did not give up his employment. At the close of November, I gave up attendance upon him. I do not know what became of him afterward.

## CASE NO. XVI.

Denis Delmotte: 25 years old; lemonade seller; born at Vertun (Pas-de-Calais); living at Paris; married. Entered at *La Charité* under M. Charles Bernard, June 13, 1856.

*June 21st.*—Good constitution; parents both living and healthy, as also brothers and sisters. Symptoms commenced a year ago by an obstinate bronchitis, but with no constitutional derangements. The actual disease began six weeks ago, first manifested by a great and sudden loss of strength, general ill feeling, and increase of the cough. About a month ago there was a slight hœmoptysis. There is

now a general paleness of the body, the skin, lips, and conjunctiva; great weakness, although he is able to sit up a little each day; tongue clean; small appetite; digestion good; no diarrhoea; urine normal; nothing noticeable over the abdomen; respiration easy, except there is a little difficulty of breathing when he is up; chest is well formed, with no external signs of disease; cough frequent, increased mornings and evenings.

Percussion shows dullness under the right clavicle, and also in the right supra-scapular-fossa.

Found by auscultation, under the right clavicle, a drier respiration than natural, and by strong inspiration, slight crepitation. In the supra-scapular-fossa, very rude respiration, and the sound of hubbles, very sharp, unequal, and loud, over the whole region.

In front, resonance of the voice equal on each side, though perhaps a little more marked on the right. In the right supra-scapular-fossa it was decidedly stronger, and there was also bronchophony.

The diagnosis left no room for doubt as to the nature of the disease, which was agreed to by MM. Bernard, Depaul, and Blain Descormiers.

Tubercles at the apex of the right lung, in the second stage.

Ordered the hypophosphite of lime to be given in the following manner: On the 22d of June, three grains; 23d, five grains; 25th, eight grains; 29th, ten grains; 30th, twelve grains; July 1st, fourteen grains; July 2d, twenty grains; July 7th, twelve grains. On all the days not named the dose was to be the same as on the preceding one.

*July 8th.*—M. Bernard states the general condition to be improved; appetite and strength good, and no night sweats.

The resonance, on percussion, below the right clavicle, a little less than on the left side, but scarcely perceptible; respiration a little rude; in both scapular-fossæ, moist crepitation; slight resonance of the voice; some dullness in the supra-scapular-fossa, and pain on percussion. In the lower two thirds of the lung the respiration is normal, as also over the left front. In the supra-scapular-fossa, slight dry crepitation; over the rest of that lung, respiration normal.

*July 9th.*—Gave fifteen grains of the hypophosphite.

*July 10th.*—Increased the dose to twenty grains.

*July 17th.*—Reduced to fifteen grains, and kept it at that dose.

*July 30th.*—Increased to twenty grains.

*August 5th.*—General condition the same; some crepitation on the right side, over the whole of the upper part of the lung.

*August 14th.*—Treatment has been suspended for two days.

*August 18th.*—Ordered four grains of the hypophosphite of potassa.

*August 19th.*—Gave sixteen grains of the same salt.

*August 20th.*—Reduced the dose to ten grains.

*August 23d.*—Changed the dose to ten grains hypophosphite of lime.

*August 31st.*—Changed to ten grains of the hypophosphite of soda.

*September 4th.*—Went out, and remained all day, without fatigue; cough constant; strength and appetite good; auscultation shows a great deal of crepitation in the right scapular-fossa.

*September 7th.*—Found at the base of the right lung, and over the whole of the

mammary region, a very distinct friction sound, not disappearing at a cough. Suspended treatment, and ordered blisters.

*September 13th.*—Left the city to remain two weeks in the country.

M. Bernard examined him, with the following results:

Slight dullness under the right clavicle; moist crepitation for an extent of about an inch in the same region; crepitation in both scapular-fossæ of that side, and also a slight rubbing sound at the lower part of the back.

*December 15th.*—The patient remained in the country two months.

There is now extreme cedema of the face and lower extremities; has little cough and expectoration. He states that on his journey by railroad from Paris, the weather being stormy, he caught cold. On arriving at his destination, he was seized with headache, chills, and pain in the loins, vomiting and constipation, and total inability to urinate. The physician who was summoned, ordered, among other remedies, purgatives. From that time he began to swell up.

Passing over the other signs which I discovered, I will only state that his urine, clear and frothy, was almost solidified by heat; otherwise, he was tolerably well; coughed and raised little, and had a good appetite.

The resonance and percussion on the left side are normal; on the right side there is diminution for about an inch below the clavicle; over the same point, both in front and behind, there were sibilant and sonorous râles, mixed with some friction sound; nothing abnormal at the base. Ordered opium and iron, and that he be kept warm.

*December 27th.*—The quantity of albumen in the urine has much diminished. As at this time I left Paris, I can not say what afterwards became of him.

In this case, as in the twentieth, there are the following peculiarities worthy of notice:

The constitutional and local symptoms, before the commencement of treatment, were severe and well defined. There was an improvement, and finally complete disappearance of the former, while the latter showed that a process for elimination was going on. The alleviation of the constitutional symptoms was sustained, especially of the strength and appetite, in spite of the local organic difficulty. It is evident to me that, at the time I last saw him, there was an attempt being made to throw off the morbid deposit. The acute inflammation of the kidneys (nephritis), was evidently due to his exposure to the cold. It is also evident that, without this, the albuminuria would not have existed; but the question arises, whether the state of plethora existing at his exit from the hospital would not predispose him to an attack. I am the more inclined to regard this to be the fact, from the case of a weak, delicate woman to whom I gave, for two consecutive days, twenty grains of the hypophosphite of soda; and who, also, had an attack of acute albuminuria. It seems to me that in these two cases there is more than a mere coincidence.

I am aware that I am exposing myself to more than a single objection as regards this case; but I opposed, with all my power, the journey of the patient into the country, offering to furnish him with the means which he needed in order to remain in Paris. Although I had no reason to suspect the albuminuria, or any other inflammation, my opposition was also based upon the unpropitiousness of the season of the year for traveling. To-day I hear that he has completely recovered.



The use of any new remedy, or one of great power, is always attended with some danger. This constantly happens from the employment of quinine, mercury, and many other medicines. In every case where I have employed my treatment, I have been guided by the symptoms of the patient; and wherever my own experience has not told me the proper dose, or the action of the salt with a different base, I have first tried it upon myself. Thus, in addition to my first experiments with the lime, I have also taken either this salt, or the soda, in doses of from twenty to forty grains in the twenty-four hours. I have also tried the hypophosphite of ammonia in doses as high as twenty grains, although I knew that its action was unfavorable to the hepatic trouble with which I am yet affected. The reason for my mentioning these facts, is, because they are the best justification for the course I have pursued; and because I think this method the only way in which any really valuable discovery in therapeutics can be established.

## CASE NO. XVII.

Amhrosine L—: aged 3 years and 9 months.

*July 29th, 1856.*—Nineteen months ago her brother died of a cough at the age of 4 years and 9 months. She has coughed for the past fifteen months; has little appetite; has lost flesh, and sweats at night, especially about the head and neck; she has no diarrhoea, but complains of abdominal pains. Sleeps badly at night, and will start up suddenly, much agitated.

Resonance, on percussion, normal; respiratory murmur diminished over the whole of the right lung, especially at its apex; in the supra-scapular-fossa, there is some crepitation, especially during a cough; the respiration of the left lung diminished, especially over the back and at the apex; the abdomen is enlarged, hard, and tender on pressure; pulse, 136; respirations, 38.

Ordered one grain of the hypophosphite of lime.

*August 2d.*—Has coughed less; is in much better spirits. Increased the dose to two grains.

*September 3d.*—The treatment has been continued at the same dose. Her general condition is now much improved, and her appetite is good; she has no night sweats; coughs less, and is quite gay; her stomach is no longer hard, nor painful on pressure; she has gained flesh, and her mother says is as strong as before her sickness; pulse, 130.

*September 10th.*—Her mother did not bring her to me after this date, so that I am ignorant what became of her.

## 'CASE NO. XVIII.

M. G—: medical student.

*August 7th, 1856.*—The memoranda of his case, which this patient gave me, I have lost. My own were as follows;

Has coughed every winter for the past five or six years; this year it has continued into the summer. A month ago he had a profuse hemoptysis.

Found the resonance in front almost normal, except a very slight diminution on the right side. The respiration on that side is also a little feeble, with crepitation, and a few sibilant râles below the clavicle. On the left side the respiration was feeble below the clavicle.

Resonance, on percussion over the back, about normal; respiration on left side healthy; on the right, moist crepitation in both scapular-fossæ, with feebleness of the respiratory murmur over the rest of the lung.

*Diagnosis.*—Softened tubercles at the apex of the right lung; tubercles in the first stage over the remainder of that lung; on the left side, tubercles at the apex, in the first stage. Ordered ten grains of the hypophosphite of lime.

*October 17th.*—By the advice of MM. Trousseau and Grisolle, my patient left for the *Eaux Bonnes* a few days after my last note. He continued my treatment there for twenty-five days, and then gave it up, by the advice of M. Guéneau de Mussy, on account of the appearance of a little blood in the sputa. He has experienced a notable change for the better; his appetite increased; has no fever, but coughs a great deal. Ordered eight grains of the salt.

*October 28th.*—The dose has been increased and continued at twenty grains. At this time, his strength and appetite have returned to their normal condition; he has gained a great deal of flesh; there is still some dullness at the apex of the right lung, but seems to me much less than before treatment. In front, I can hear neither râles nor crepitation below the clavicle. In the supra-scapular-fossa, there are a few sibilant râles, but only heard at the end of a deep inspiration. Over the rest of the lung, the respiratory murmur is heard almost as well as over the left lung, where it seems to be normal. He has scarce any cough or expectoration.

Treatment was now suspended for three weeks. At the beginning of January, he told me that his cough had increased while he had lost strength and appetite. On the 8th I recommenced the treatment at a dose of twenty grains, and by the 20th I found that his condition was even better than at the close of November. He was in this condition when I left Paris.

## CASE NO. XIX.

Eugène Leroy: 17 years of age; printer; living at Paris; entered *La Charité* under M. Bernard.

*July 13th, 1856.*—His disease commenced six months ago by a cold, but without fever or chill. Since then his cough has not ceased. About a month ago, for two days, he spit blood, which was repeated two weeks later. From the commencement he has been troubled with night sweats; gave up work about a month after his illness began; has some appetite; has taken cod liver oil, but gave it up yesterday, because it produced vomiting; has fever and chills, especially when he tries to raise; pulse 112; respiration 36. His mother is alive; father died of a cold which he neglected; has no brothers and sisters.

There is excessive debility and emaciation; expectoration of seven or eight characteristic mummular sputa, almost purulent; has not been up for fifteen days.

Over the right front of the chest, there is dullness from the clavicle to the fifth rib; intense cavernous respiration; pleuritic and friction sound, and great resonance of the voice; over the left front, rude respiration, difficult expiration, and some crepitation.

Over the right back, diminution of resonance, on percussion, in both scapular-fossa; cavernous respiration and rattling in the sub-scapular-fossa; considerable vocal resonance; over the left back, slightly diminished resonance, on percussion, in the supra-scapular-fossa, where there is rude respiration, and moist crepitation; at the base of that lung the respiration is still more rude.

*Diagnosis.*—Large cavity at the apex of the right lung; tubercles in the left lung, in the first and second stages.

*July 17th.*—M. Bernard has found the same signs, but in addition, moist crepitation over the rest of the right lung from behind. Ordered the hypophosphite of lime in a dose of ten grains.

*July 21st.*—Increased to twelve grains.

*July 23d.*—Increased to fifteen grains.

*August 6th.*—At the base of the right lung, behind, the râles have disappeared, and been replaced by a very rude respiratory murmur; in front, there is strong cavernous respiration; on the left side, the respiration is feeble behind and exaggerated in front.

*August 19th.*—Has seemed to improve; his strength and appetite are better, but is much troubled by his night sweats, which are excessive; cough and expectoration moderate in amount. Changed to the hypophosphite of potassa at the dose of seventeen grains.

*August 20th.*—Auscultation shows same state; but at the base of the left lung, in front, the respiration is feeble; at the apex, both in front and back, there is great rudeness.

*August 28th.*—Sputa are highly colored with blood. Treatment has been suspended for two days.

*August 31st.*—Changed to hypophosphite of soda at a dose of five grains.

*September 6th.*—Has had two watery evacuations, with colic all night, which prevented his sleeping; no appetite; cough and expectoration much diminished; pulse 108. Ordered fifteen grains of the soda.

*September 7th.*—Reduced to ten grains.

*September 14th.*—Has had no night sweats, but complains of having had chills all day and night; the cavernous respiration is less marked on the right side, and is replaced by a rude respiration and moist crepitation; behind, a mucous râle can be heard over the whole extent; on the left side, in front, the respiration is rude; behind, there are some sibilant râles, and moist crepitation. Ordered sixteen grains of the hypophosphite of soda.

*September 18th.*—Sweating a little less; expectoration a little increased, with some blood. Increased the dose to twenty grains.

*September 21st.*—Feels well enough to go out.

*September 22d.*—Complains that he cannot sleep upon the left side; no more

blood in sputa; no chills; sweats very little; has a good appetite, but the cough and expectoration are much increased. Reduced the dose to five grains.

*September 14th.*—Auscultation shows numerous râles over the whole of the right hack; some crepitation at the base, and at the left hack. Suspended treatment.

*September 30th.*—Been troubled with diarrhœa; has had three liquid stools to-day; no sweating last night; less cough. Commenced again with eight grains of the hypophosphite of lime.

*October 5th.*—Has had some diarrhœa up to this date; pain on his right side, increased by coughing; raises some bloody sputa. Discontinued treatment.

I did not see this patient again. He died, I believe, in December.

## CASE NO. XX.

Louis Dnprez: 21 years old; type-founder; born at Lille; living at Paris; unmarried; entered *La Charité*, under M. Charles Bernard; is a foundling.

*August 23d, 1856.*—Has suffered for the past three years with abdominal pains, but has never had lead colic; has been wretchedly poor for some time, and often suffered from hunger; says that his disease commenced six weeks ago, by cough and abundant expectoration of a transparent fluid; has had headache and difficulty in sleeping upon the right side. Three weeks ago, as a sequel to one of these headaches, and bleeding at the nose, he spit some blood.

*August 29th.*—Has little appetite; no diarrhœa; tongue is white; has great thirst; no hemorrhage; the abdomen is enlarged and tympanitic; no blue line on the gums; pulse 70.

There is dullness under the right clavicle; in the same spot the inspiration is very rude, and the expiration rude and prolonged; there is also marked resonance of the voice; behind, there is the same dullness in the external part of the supra-scapular-fossa, as also the same changes of the respiration and voice, with the addition of moist crepitation; in front, on the left side, the resonance is normal; the respiration, above, is a little increased; behind, on the same side, after a cough, can be heard dry crepitation in both scapular-fossæ, and the voice in the same locality is strongly resonant.

*Diagnosis.*—Tubercles at the apices of both lungs, commencing to soften on the right side.

*August 30th.*—Commenced treatment with the hypophosphite of soda at a dose of five grains.

*September 1st.*—Increased to six grains.

*September 5th.*—Increased to ten grains.

*September 6th.*—Increased to fifteen grains.

*September 8th.*—My patient tells me that two hemorrhoids have appeared, which trouble him very much; he says he never had any before. I examined and found two of the size of a small nut. Decreased to five grains.

*September 9th.*—Increased to ten grains.

*September 14th.*—Increased to sixteen grains.



*September 16th.*—Increased to twenty grains.

*September 18th.*—Was seized suddenly in the night with a violent hemorrhage, which has now nearly stopped. Suspended treatment.

*September 21st.*—The moist crepitation in the supra-scapular-fossa cannot now be heard. Commenced again with four grains of the hypophosphite.

*October 2d.*—No diarrhoea; less cough; expectoration small; sweats very little, and only on the back; appetite is good. Changed the dose to eight grains of the hypophosphite of lime.

*October 3d.*—Under the right clavicle there is dullness, cavernous respiration, crepitation, and pectoriloquy; on the left side, rude respiration, and some vocal resonance; over the right back, moist crepitation in the supra-scapular-fossa, and resonance of the voice; in the sub-scapular-fossa, rudeness of the respiratory-murmur, and some crepitation at its inner angle; on the left side, the supra-scapular-fossa there is rude respiration, and moist crepitation more marked than upon the right side; in the sub-scapular-fossa, nearly the same symptoms, but the amount of crepitation is less; the respiration is increased over the whole chest.

*October 5th.*—Treatment ceased from this date. It is evident that there was an attempt going on in this patient to eliminate the morbid deposit formed before the commencement of treatment. The persistence of the diarrhoea depended probably upon some lesion of the intestine, which would create a doubt as to the probability of a favorable result. Nevertheless, at the close of treatment, the patient was stronger and in a much better general condition than before, notwithstanding the symptoms had made such progress.

Under this head, the present case should be compared with No. 16.

The patient remained at the hospital until February, when he returned to his own part of the country. As I was not in Paris at that time, I can not speak with certainty as to his condition, or what became of him subsequently.

Since that period, on further reflection upon this case, it has seemed to me that the hypophosphite had not been given in sufficiently large doses, and that the lime was preferable to the soda. The dark color of the blood vomited up, the manner in which it made its appearance, four days after the disappearance of the hemorrhoids, and its spontaneous cessation, also seems to me of sufficient importance to be mentioned.

## THIRD SERIES.

## CASES WHICH RESULTED FATALLY.

## CASE NO. XXI.

DONA JOSEFA P.—: 19 years old; married; born in Havana. Her disease commenced two months ago, soon after child-birth.

*March 10th, 1855.*—The patient is in a state of extreme prostration; her breathing is quick; face anxious; has a hectic flush in the cheeks; pulse is rapid and thready; skin burning; stomach very much distended, and painful on pressure; cough and expectoration considerable; no appetite.

Auscultation shows numerous râles, but of various degrees, over the whole of both lungs, both behind and before; the normal respiratory murmur can be heard nowhere; night sweats profuse; with diarrhoea.

*Diagnosis.*—Acute tuberculosis of the lungs and intestines.

*March 13th.*—Ordered one grain of the hypophosphite of lime.

*March 14th.*—Four evacuations; increased to four grains.

*March 15th.*—Diarrhoea less; increased to six grains.

*March 16th.*—Says she has slept better; perspired and raised less; has had two evacuations; wants to eat, and dress, and get up; breathing seems to be easier, and the face has lost, in a great degree, its peaked and restless appearance.

*March 18th.*—Much improved; sat up more than four hours yesterday; says she coughs less; had two stools, exhibiting some consistency.

*March 19th.*—Increased to eight grains.

*March 21st.*—Was sent for in the afternoon, and on arrival found my patient in a complete state of prostration, covered with sweat; her features pinched, and with a continual hiccough; pulse almost imperceptible; stomach enormously distended, tympanitic, and excessively tender to the touch. She complained very much of a sharp pain in the right iliac and hypochondriæ-fossæ.

Died in the course of the night. No autopsy.

## CASE NO. XXII.

Doña A. G.—: 31 years old; married; born in Havana; has been sick eight months.

*November 3d, 1855.*—Face is pale and dejected; emaciation is extreme; cough continual, and very fatiguing to her; expectoration purulent, and so copious that she fills a tumbler and a half each day; has great difficulty in breathing; no appetite; there is fever, with chills at night; diarrhoea, and profuse night sweats.

Physical examination discovered a marked augmentation of the resonance over

the whole of the left side, especially over the back; rattling over the upper portion of the left lung, most noticeable behind; at the base, moist crepitation, most decided on the back, with great resonance of the voice; on the right side there was increased respiratory murmur.

*Diagnosis.*—A cavity at the apex of the left lung, with tubercles in the second stage at the base. Ordered four grains of the hypophosphite of lime.

*November 5th.*—Feels stronger; has less difficulty in breathing. Increased the dose to six grains.

*November 7th.*—Increased to ten grains.

*November 10th.*—Continued improvement; has been able to make quite long excursions on foot and in a carriage.

*November 13th.*—The weather has suddenly grown cold; to-day there is great dyspnoea, and the cough and expectoration have increased. Auscultation shows excessive rattling over the whole of the posterior portion of the left lung. Suspended treatment.

*November 14th.*—The patient was suddenly seized in the night with a violent pain in the left side; the respiration is quick; face anxious; auscultation shows strong cavernous respiration, occupying the whole left side of the chest, with great resonance on percussion.

*Diagnosis.*—Pneumo-thorax. [An accumulation of air in the cavity of the pleura; a complaint generally sudden in its invasion, and fatal in its character.]—TRANS.

Patient died on the 17th. No autopsy.

## CASE NO. XXIII.

Mr. A——: 32 years old; born in England; unmarried.

Has been sick seven years; came to reside in Havana six years ago, by advice of various physicians in London, who informed him that the disease then existed in his lungs. After his arrival, his cough diminished, although it never wholly stopped; he has lost flesh and strength continually since his landing; has never been treated here; but last year, finding himself weaker and more ill, he, by the advice of his physician, tried a change of air by returning again to his own country. After his arrival in England, all the symptoms of his disease increased, and he was obliged hastily to take passage for Havana, which place he reached at the end of October. Since then he has been constantly growing worse; has never had hemoptysis.

*February 2d, 1856.*—There is now excessive emaciation, with a deadly pallor; his debility is so great that he can scarcely take a few steps, even in his own room; constant and fatiguing cough; expectoration purulent, and amounting in quantity to nearly a quart and a half each day; appetite very slight; alternate constipation and diarrhoea; constant fever, increasing at night; night sweats so excessive, that he is forced to change his clothing several times during the night; great wakefulness; pulse, 110.

On percussion, I found decided dullness below the right clavicle, for a space of an inch in breadth; below, however, the sonorousness was increased beyond that on

the left side. The same difference was perceptible in the corresponding positions behind. On auscultation, I found at the summit of the right lung, both at front and back, stong cavernous respiration, with great resonance of the voice; over the rest of the lung, lower down, starting from the upper ædge of the second rib, cavernous râles, replacing completely the respiratory murmur; the vocal resonance varied according to the spot to which the ear was applied, but it was especially noticeable at the lower angle of the scapula; over the left side, both in front and behind, the respiration was increased; but there were no râles, crepitation, nor vocal resonance; sounds of the heart normal.

*Diagnosis.*—A large cavity at the apex of the right lung; lower down, several multiple, but smaller cavities; one of them, bowever, at the base of the back, seems larger.

Ordered ten grains of the hypophosphite of lime.

*February 4th.*—Has sweat less, and slept better; the pain over the right side of the chest has nearly disappeared. Increased to fifteen grains.

*February 5th.*—Increased to twenty grains.

*February 9th.*—Continues to improve; has ridden out several hours each day; his appetite has returned; the expectoration is diminished one half, and has lost its purulent appearance; no night sweats. Auscultation shows the same cavernous respiration, but the râles have nearly disappeared, and are replaced by a rubbing sound, intermixed with sibilant râles. Changed to thirty grains of the hypophosphite of soda.

*February 10th.*—In consequence of over-eating, he was seized with symptoms of indigestion, followed by colic and four or five free stools.

Stopped treatment, and gave ten grains of bismuth every two hours, three times, and at night twenty drops of laudanum.

*February 13th.*—Ordered ten grains of the hypophosphite of lime

*February 14th.*—Changed to twenty grains of the hypophosphite of soda.

*February 17th.*—Changed to hypophosphite of lime, at a dose of thirty grains.

*February 20th.*—Decreased to twenty grains.

*March 2d.*—The weather has been so unfavorable for the past fortnight, that I was obliged to prevent his going out. To-day he requested me to discontinue my visits; because, as he said, he did not wish to continue the treatment longer, and be obliged to remain at home, regulate his diet, and above all, *give up smoking*.

*March 9th.*—Was again summoned; had eight or ten liquid stools since morning, in consequence of having day before yesterday indulged too much in eating; the cough and expectoration have increased; in consequence, he says, of having gone out in the cold.

*March 9th.—Evening.*—The diarrhoea has slightly stopped, but he is still excessively weak. Commenced with ten grains of hypophosphite of lime.

*March 10th.*—Died during the night: no autopsy.

It would hardly have been reasonable to hope that this patient should recover, or that the organic lesions should be so modified that life could be continued in a quasi-normal manner; but at the same time, when it is noticed that the improvement was continued as long as the treatment was kept up: when this case is compared with No. 13, which was fully as serious as this, and moreover was not so favorably situated in regard to climate; and especially, if it is compared with No.



12, where the disease was much more advanced, it seems to me not unreasonable to conclude, that with more docility on the part of the patient, his life would, at least, have been prolonged for some time.

## CASE NO. XXIV.

Madam T——: 25 years old; living in Paris; sick for the past two years.

*July 4th, 1856.*—Over the whole of both lungs, both at back and in front, mucous râles can be heard, which in some places have a cavernous character. This patient is nearly *in extremis*. Ordered ten grains of the hypophosphite of lime.

This dose, continued for the three following days, produced no change in her condition. I therefore discontinued it. I should not have consented to the trial had it been possible to resist the demands and importunities of her family. She died a few days afterwards.

## CASE NO. XXV.

Pierre Rostollin: 30 years of age; paper-maker; unmarried; born at Damencey, in Savoy; now living in Paris; entered *La Charité*

*June 21st, 1856.*—Two years ago had bronchitis and pneumonia; otherwise has been well to last January; his father died at 60 years of age, of some pulmonary trouble; a brother, 12 years old, died of a scrofulous abscess; has lived at Paris 12 years, and always regularly; in January, after a sudden exposure to cold, was seized with chills and a cough, which has been increasing ever since; has had constant diarrhœa, with progressive emaciation and weakness; says there has been no hæmoptysis; since February the night sweats have been excessive, especially about the head and chest; his nails are curved, and hair falls out; the voice is a little hoarse, but otherwise natural.

On the left side, in front, there is a little dullness towards the shoulder, with moist crepitation from the clavicle over the whole front of the left lung; the vocal resonance is somewhat increased.

In various localities of the right lung, but especially below the clavicle, the respiration is very rude, and everywhere there is moist crepitation; under the clavicle there is small crepitation, almost approaching a crepitant râle; the resonance of the voice seems nearly equal on both sides.

Over the left back, the sonorousness is diminished in the supra-scapular-fossa; and there, especially, is rude respiration, and moist crepitation, but less abundant than in front; below the spine of the scapula there is slight crepitation.

The crepitation on the right side is most marked in the sub-scapular-fossa, but the respiration is badly performed below this, and there is a distant murmur, which seems as if it might come from a cavity; the respiration in the lower two thirds of each lung is well enough performed.

*Diagnosis.*—Tubercles, occupying the whole anterior portions, and the apices at

back of both lungs, in process of softening; on the left side there are evidences of a cavity; the diarrhoea probably depends upon the presence of ulcerations of the intestines.

*June 23d.*—Pulse 105; respiration 36; skin hot; cough frequent; expectoration muco-purulent, of a yellowish-green color; constant thirst; little appetite. Ordered five grains of the hypophosphite of lime.

*June 24th.*—Increased to ten grains.

*June 27th.*—Diarrhoea all night; pulse 116.

*July 3d.*—The diarrhoea, which has continued, has now much increased. Death ensued during the night of the 5th of July.

The autopsy revealed a complete tuberculous infiltration of both lungs. In the left lung there was a cavity of the size of a large hen's egg; in the left, three or four much smaller. In the large intestine there were five or six ulcerations, occupying nearly the whole circumference for a space of some three or four inches in length. The other organs were not examined.

The only effect produced by the treatment was to render the night sweats less profuse. If, however, the lesions exhibited at the autopsy are remembered, it will be conceded that the treatment, no matter how efficacious it may be, could not, in such a case, produce any favorable change.

## CASE NO. XXVI.

Alphonse Huré: 22 years old; unmarried; wine merchant's assistant; born at La Palisse (Mayenne); now living in Paris; entered *La Charité* June 13, 1856.

*July 5th.*—Parents, brothers and sisters all well; disease began eight days before entrance at hospital; after an exposure, he was seized with a cough, and raised more than a pint of blood; this was stopped by appropriate remedies for three days, when it recommenced and continued until eight days after his admission; has profuse sweating; has lost strength; and since his admission has not been able to rise from his bed on account of the difficulty of breathing; appetite is poor; no diarrhoea; cough moderate; pulse 116; fever at night.

On examination, found, over the right front, the sonorousness normal; the respiration rude; with well-marked vocal resonance; over the left front, the sonorousness normal, with mucous and sibilant râles over the whole extent; with a resonance of the voice; over the right back, diminution of sonorousness in the supra-scapular-fossa, with total absence of respiration; râles and crepitation over the rest of the lung; over the left back, the sonorousness was normal; there were râles over the whole extent, having in some places the character of cavities, especially on a level with the spine of the scapula, where there was also decided resonance of the voice, and in one spot pectoriloquy.

*Diagnosis.*—Acute phthisis, (it has made rapid progress since June 27th); tubercles in the second stage over the whole posterior portion of the right lung, with perhaps a tuberculous mass at the apex; tubercles in the second stage over the whole of the left lung, with perhaps a cavity on a level with the spine of the scapula.

Treatment: four grains of the hypophosphite of lime.

*July 21st.*—Respiration 50; pulse 140. His condition has not been modified in the slightest by the treatment, except by the stoppage of the night sweats.

*July 24th.*—Died yesterday evening. On the post-mortem examination, numerous resisting false membranes were found covering both lungs, and uniting the two sides of the pleura. At the apex of the left lung there were two cavities, one of them as large as a hen's egg. Both lungs were completely infiltrated with caseous tubercles, except about an inch of the base of the right lung, and about two inches of the lower posterior portion of the left. These two portions, by their cherry red color, contrasted singularly with the rest of the organ. These were found to be completely hepatized. The maximum dose was twenty grains; increased from four grains, at the rate of two grains each day, and continued for eighteen days.

## CASE NO. XXVII.

Justine D——: 16 years old; unmarried; lace maker; born at Ivry-la-Bataille; living at Paris for the past seven years.

Neither parents, brothers, or sisters, have been troubled with pulmonary affections. Had catamenia when 13 years old; is sometimes troubled with leucorrhœa; has experienced pain between the shoulders for a year; began about two months ago to cough; before this was perfectly well, although delicate; has never raised blood; has had fever about four o'clock each afternoon since being sick, which continues until bed-time; has also been troubled with night sweats; has no diarrhœa, but has been sometimes a little free; no colic; digestion is poor, and generally vomits her dinner after an attack of coughing; has lost strength, appetite, and flesh very much; her temperament is lymphatic; constitution feeble; face pale and thin.

*July 9th, 1856.*—Over the left front, for about an inch below the clavicle, there is decided dullness; the sonorousness is sensibly diminished over the rest of the lung; moist râles and vocal resonance at the apex: over the right front the sonorousness is natural, but the respiration is very feeble: over the left back, the sonorousness is sensibly diminished in both scapular-fossæ; in the supra-scapular-fossa the respiration and cavernous râles are characteristic, and there is marked pectoriloquy: over the right back, respiration and sonorousness about normal.

*Diagnosis.*—Acute phthisis; tubercles in the third stage at the apex of the left lung, and in the second stage in the remainder of that lung.

Ordered ten grains of the hypophosphite of lime.

*July 13th.*—Feels much better; the vomiting and sweating have wholly disappeared, while the appetite and strength have returned; the cough has diminished. Increased the dose to twenty grains.

*July 31st.*—Auscultation shows an intense cavernous murmur in the upper two thirds of the left lung, both in front and back, but no râles; at the base, feebleness of the respiratory murmur in front, and a few râles behind; the respiration is much exaggerated over the right lung.

From this day the treatment was stopped, and on the 7th of September she

died. This patient, from the moment she felt the improvement, persisted in taking long walks, (sometimes for two hours at a time); she also committed other imprudences which hastened the fatal result.

### CASE NO. XXVIII.

A woman, (name unknown): domestic; 21 years old; under the charge of M. Briquet; says her parents, brothers, and sisters are well; was very strong up to the commencement of her present sickness; has had catamenia since 15 years of age; disease began about three months ago by a spitting of blood, which continued for eight days; since then she has coughed constantly; says she has lost flesh; has had diarrhoea for eight days; can not sleep upon the left side; sweats much at night; expectoration is slight; skin cool; pulse 104.

Chest well formed, with a slight projection over the right false ribs; abdomen normal in appearance; over the left hack, there is moist crepitation, through the whole extent of the lung, but its greatest degree is at the base; it is increased by inspiration; in the lower two-thirds of that side there is marked resonanco of the voice; over the right hack, at the apex of the lung, there is some slight crepitation.

*Diagnosis.*—Miliary tubercles in the whole posterior portion of the left lung, with considerable hyperæmia [congestion]; the right lung nearly normal, but with perhaps a few tubercles at the apex; acute tuberculosis, in process of softening. Ordered ten grains of the hypophosphite of lime.

*October 17th.*—The eruption of *varicella* has appeared; the diarrhoea continues. Decreased to eight grains.

*October 25th.*—The pustules are drying up; she sweats very little, and has some appetite.

*November 25th.*—There was perforation of the lung during the night, when death ensued.

Although the condition of this patient was such that I could not hope for a different termination, it is probable that if the variolous eruption had not appeared, there would have been a more decided improvement. Even admitting that the eruption had no direct influence in the softening of the tubercles, it is fair to suppose that it had upon the diarrhoea; and this certainly hastened the fatal result.

### CASE NO. XXIX.

M. Eugene P—: 26 years old; unmarried; born in the department of Ardennes; living in Paris for the past twenty years.

*August 19th, 1856.*—Has been sick since the middle of May, at which time he was attacked with fever and chills, spitting of blood, and pain in the lower posterior portion of the right side. Had a cough before that for the past three or four years. His family is healthy, and was himself very strong and healthy; but now



he has lost flesh and strength; there is no appetite; a frequent cough; profuse perspiration, but no diarrhoea; nails curved; expectoration muco-purulent and profuse.

In front, I found a slight increase of sonorousness in the right sub-clavicular region, over the left lung; respiration over the left front almost normal; on the right, under the clavicle, there is a rude murmur, and moist crepitation; behind, the sonorousness is normal; in the right supra-scapular region there is crepitation, with considerable vocal resonance; in the axillary space, sibilant râles, extending to the base of the lung.

*Diagnosis.*—Tubercles on the right side, in the second and third stages, with bronchitis. Ordered four grains of hypophosphite of lime, to be increased gradually to ten grains.

*September 3d.*—Patient has gained much flesh and strength; his appetite is as good as before sickness; the night sweats have ceased; the cough and expectoration have diminished.

*September 5th.*—Changed to ten grains of the hypophosphite of soda. The physical signs remain about as they were previous to treatment.

The patient continued the treatment until the beginning of October; but he constantly committed imprudent acts, was wet one day in the rain, and several times exposed himself to draughts. After each exposure, or act of imprudence, there was a change in his condition for the worse. He died about the middle of the month.

This case, as well as cases 31 and 33, dated the commencement of the disease to a syphilitic attack. I could find no secondary signs, but it is certain that each of these three cases experienced less alleviation from the treatment than all the others.

## CASE NO. XXX.

Marie Hurel: 25 years old; singer; born at Versailles; family all healthy; has had two children, who both died at two and three years of age, respectively, of inflammation of the lungs, without convulsions. Disease commenced a year ago, with cough, loss of flesh, weakness, pallor, and menorrhagia. For the past four months there has been an aggravation of the symptoms, with hemoptysis, which once continued a whole day.

*June 21st, 1856.*—M. Empis, who examined her, drew up for me the following notes:

Great pallor, weakness and emaciation; tongue clean; no appetite; digestion good; has had no diarrhoea; abdomen slightly tympanitic, and tender on pressure; the liver extends for an inch and a half below the false ribs.

The catamenia had disappeared at the two previous epochs, but returned slightly at the last; pulse 104; increase of fever at night, followed by copious sweats; respiration short and quick; cough frequent; expectoration abundant, and composed of characteristic muco-purulent matter.

Percussion shows dullness under the right clavicle, also especially marked in the supra-scapular-fossa of the same side.

Auscultation shows moist crepitation under the right clavicle; in the right

sub-scapular-fossa, a cavernous *souffle*, with bronchophonial resonance of the voice; in the sub-scapular-fossa of the same side, some friction sound, which does not disappear during a cough, and is heard better during expiration than during inspiration.

*Diagnosis*.—As given by M. Empis: Tubercles at the apex of the right lung, in the second and third stages, with a cavity.

The condition of the left lung was not mentioned by him, for the reason, probably, that the notes of it were forgotten. The treatment was commenced with five grains of the hypophosphite of lime.

*June 23d.*—Increased to fourteen grains.

*July 2d.*—Increased to twenty grains.

*July 4th.*—Increased to forty grains.

*July 5th.*—Decreased to twenty grains.

*July 7th.*—Decreased to fourteen grains.

*July 8th.*—Her condition has much improved; her strength and appetite have increased; the night sweats have ceased; she gets up, and can walk down stairs, and about the garden.

M. Bernard examined her to-day, with the following results:

No pain on percussion; no dullness under the right clavicle, but the respiration shows a slight rudeness, with sonorous rhonchus; over the left front, the respiration is a little increased; over the right back, the sonorousness is diminished in both scapular-fossæ; in the supra-scapular-fossa the respiration is feeble, and there is also slight moist crepitation, which is more marked in the sub-scapular-fossa; over the rest of that lung there are some few mucous and sibilant râles; over the left back the respiration seems almost normal.

*July 10th.*—Had a chill last evening, which lasted for three hours, and was followed by fever and sweating. Ordered twenty grains of the hypophosphite.

*July 21st.*—The patient has continued at the dose of the last date up to this time, with marked improvement; to-day she complains of a severe pain over the heart, which renders her breathing very difficult. Stopped the iron, reduced by hydrogen, which she had been taking at the dose of one grain.

*July 26th.*—No appetite; some diarrhœa.

*July 30th.*—Diarrhœa stopped; pulse too frequent to be counted; cough has increased to such an extent that she can not sleep.

*August 1st.*—Expectoration very profuse, and almost entirely purulent; respiration 40; pulse 136. Ordered thirty grains of the salt.

*August 3d.*—Pulse 92; respiration 22. Ordered sixty grains of the hypophosphite of lime.

*August 4th.*—Pulse 126; respiration 30. Decreased the dose to thirty grains.

*August 5th.*—Respiration 36; pulse very frequent; skin feels well; no diarrhœa; strength has increased; says her appetite is better; general appearance much improved. Increased to forty grains.

*August 7th.*—Pulse 120; respiration 36. Auscultation shows mucous and sibilant râles occupying the back of both sides of the chest, especially at the base of the right lung; in front, a cavernous murmur over the whole lung; on the left side the respiration is sufficiently clear, with the exception of slight, dry crepitation at the base. Increased to sixty grains of the lime.

*August 9th.*—Symptoms of asphyxia; nails and lips are blue; considerable dyspnoea. Suspended treatment.

*August 13th.*—Continued in about the same condition until last night, when she died. At the *post-mortem* examination, we discovered numerous adhesions between the two sides; a large quantity of serum in the pericardium; a small cavity occupying the apex, and another almost the whole upper lobe of the right lung, with complete tubercular infiltration of the rest of the lung, which was also much hepatized. The tubercles did not seem to be softening. The left lung contained a large number of tubercles at the apex, with others scattered through about a quarter of its substance. These did not seem to be softened, nor suppurating, either at their center or periphery. The tissue of the lung was much hepatized; a small piece, placed in a glass of water, sank at once to the bottom. The liver was enlarged, and had undergone a fatty degeneration.

The body contained a large quantity of blood, and presented none of those appearances of anæmia which are generally found in the bodies of those who have died of consumption.

The immediate cause of death in this case seems to me to have been an inflammation of those portions of the lungs which were not yet tubercularized. The question arises, was not this encouraged by the large doses of the medicine which were used? In case No. 12, doses nearly equal were employed with advantage. It seems to me that in this case, as in two others which I have treated, the use of iron, simultaneously with the hypophosphites, has induced, almost immediately, symptoms of congestion or of inflammation. It is probable that under any treatment the disease would have resulted fatally; but with the experience I have had, I think that this patient, if she had been in a warmer climate, or in one less subject to atmospheric variations, would have experienced such decided benefit from the use of this specific remedy as to have prolonged life for a much longer period.

## CASE NO. XXXI.

Charles K—: 33 years old; unmarried; waiter; born in the Grand Duchy of Baden; parents were never affected with pulmonary complaints.

*August 7th, 1856.*—Disease commenced eight months ago with cough, but no pain or fever; has lost much flesh; strength and appetite have diminished; has been troubled with night sweats for the past four weeks, which were most profuse over the head, neck, and chest; about fifteen days ago his expectoration became bloody, but this continued for one day only; for the past six weeks has had one liquid evacuation each day; cough frequent and fatiguing; pulso 100.

In front, the resonance is about normal on both sides; respiration more feeble at the apex of the left lung than at the right; cough and voice present no marked characteristics: over the back, the respiration is much more feeble on the left side, especially in the supra-scapular-fossa, where there is also some moist crepitation; over the right back the respiration is about normal.

*Diagnosis.*—Tubercles in the first and second stages, at the apex of the left lung, with probably some intestinal disease.

Treatment: Four grains of the hypophosphite of lime.

*August 9th.*—The patient says the cough and expectoration have both diminished; his appetite and strength improved; and that the night sweats have almost ceased. Increased to ten grains.

*September 1st.*—Has been steadily improving up to this time. About ten days ago he began to complain of pains in the epigastric region, especially after eating, with desire to vomit; severe chills, followed by fever, recurring regularly; has had one or two attacks of bilious vomiting; one liquid evacuation each day; no dyspnoea.

*September 3d.*—An eruption of *psoriasis*\* has appeared over the back, which has a most suspicious copper color.

Says that eight months ago he had a chancre, with running; the first was treated with a pomade, and was cured in eight days; the running lasted three months, and was cured with injections. It was at this time the cough commenced, which has continued ever since.

*September 8th.*—Had four liquid evacuations yesterday, with considerable colic. Changed to ten grains of hypophosphite of soda.

*September 13th.*—No night sweats, or chills; no diarrhoea; cough and expectoration diminished; appetite and strength good.

*September 30th.*—Gave eight grains of the hypophosphite of lime; cough has increased considerably; has been troubled with vomiting, induced by the violence of it.

*October 4th.*—Pulse 120; coughs and raises a great deal; one liquid evacuation; no vomiting; complains of sleeplessness; no headache, or pain over the chest; no night sweats, fever or chills; strength has much diminished. Changed to two grains of the hypophosphite of ammonia.

*October 6th.*—Complains of pains in the epigastric region; no colic; two evacuations this morning. Increased to four grains of the ammonia salt.

*October 7th.*—Increased to eight grains of the same.

*October 13th.*—Changed to twelve grains of the hypophosphite of lime.

*October 15th.*—Had an attack of bilious vomiting yesterday; no diarrhoea; coughs and raises less; sleeps better; has no fever, chills or night sweats; strength and appetite better.

He continued in this condition up to the beginning of November; the diarrhoea during this time steadily increasing. There were no noticeable changes in the lungs. His death was due to an aggravation of the intestinal symptoms. Taking into consideration the probable condition of the intestines, there can be no doubt that death must have sooner or later ensued; but I think this result was much hastened by his irregularities of diet. In this case, as also in cases 29 and 33, the improvement was not as well marked as in the others. All three dated the proximate cause of their disease to an attack of syphilis.

\* A cutaneous affection, consisting of patches of rough, amorphous scales; continuous, or of indeterminate outline. Dr. Willan gives names to eleven varieties of psoriasis, some forms of which are known as the *Baker's Itch*, *Grocer's Itch*, &c.—NOTE BY TRANS.



## CASE NO. XXXII.

Mademoiselle Amelie D——: sister of the patient mentioned as case 34; has been sick since July, 1855.

Her disease commenced with a cough, accompanied with fever, from excessive occupation. The fever lasted eight days, when it diminished, in consequence, she thinks, of taking cod liver oil. The improvement continued until March last, when the cough returned with greater severity than before; she also, at the same time, began to lose her strength and appetite. In May she was attacked with a diarrhoea, which has persisted up to the present time, although controlled in some degree by narcotics and astringents.

*August 9th, 1856.*—Was examined on the 30th of June by M. Louis, who made the following notes: Resonance about equal on the two sides; respiratory murmur most developed under the right clavicle, accompanied on each side with a superficial sub-crepitant râle; the same râle exists over the back, at the apices of both lungs; it is strongest on the right side, where there is also bronchophony; the lesions have about the same degree of severity on each side.

In addition, I discovered in the right supra-scapular-fossa, a cavernous respiratory murmur, with slight vocal resonance; on the left side, both back and front, the same signs as on the right side.

She is now very weak, thin and pale; has still a diarrhoea; has night sweats; a chill and fever each afternoon about four o'clock; her cough is frequent, and prevents sleeping; catamenia did not appear at the last two periods; appetite almost gone.

*Diagnosis.*—A cavity at the apex of each lung. Ordered ten grains of the hypophosphite of lime.

*August 26th.*—Has had no diarrhoea for three days, but complains of chills, and a pain on the right side, at the base of the lung. Ordered a blister, *loco dolenti*, to be afterwards treated with powder of digitalis.

*September 5th.*—Pulse 100; no fever or night sweats; strength and appetite increased; no cough during day time, and but little at night; no evacuation for two days; came to visit me on foot. Changed treatment to ten grains of the hypophosphite of soda.

*September 10th.*—Since the 8th has had fever and chills after her dinner, followed by profuse sweating; has coughed a great deal at night. Changed treatment to ten grains hypophosphite of lime.

*September 13th.*—Complains of pain over the whole body; has had fever, with chills and sweating; some colic, but no diarrhoea. Changed to ten grains of the salt of soda.

*September 16th.*—Pulse 102; at three o'clock yesterday she had violent chills, followed by fever and sweating through the whole night; no diarrhoea; has headache; coughs and raises a little; considerable thirst, and little appetite. Increased the dose of the salt of soda to fifteen grains.

*September 18th.*—Increased the dose to twenty grains.

*September 19th.*—Pulse 100; had fever all day yesterday, with chills and sweat-

ing; has coughed and raised a great deal; no pain in side, but some headache; no diarrhoea; appetite better. Stopped treatment.

*September 23d.*—Less of the fever and chills; headache still continues; has coughed and raised as much as usual; since last evening, no pain in side on coughing, but the oppression in breathing remains; no diarrhoea; pulse 104. Gave twenty grains hypophosphite of lime.

*October 2d.*—The bad weather, and aggravation of her symptoms, have prevented her visiting me since the 24th; she has had, all the time, fever at night, and the night sweats worse than ever; pulse 100; headache still continues; yesterday had diarrhoea; strength and appetite have much diminished. Decreased the dose to eight grains of the hypophosphite of lime.

*October 4th.*—Complains of vague pains; headache; profuse night sweats; but has no chills, fever, or diarrhoea. Increased the dose to twelve grains of the lime salt.

*October 8th.*—No diarrhoea or colic; no chills or fever; sweating has diminished; cough and expectoration about the same; no appetite; pulse 108; strength increased; has pain in the throat. Ordered sixteen grains of the hypophosphite of lime.

*October 10th.*—Diarrhoea; colic; chills; no appetite; but the sweating has diminished; great pain in the throat, with loss of voice; pain in the head; cough and expectoration increased.

*October 14th.*—Diarrhoea has been stopped, and sleep obtained, by the use of laudanum; cough and expectoration unchanged; has sweat much; appetite and strength good; throat better; had much fever yesterday, from three to six o'clock.

*October 17th.*—Headache much worse to-day, especially in front; no fever or diarrhoea; appetite better; sweats and coughs much less, and the expectoration is also diminished; pulse 116; says she feels very much better; and her face has much improved during the past few days.

*October 20th.*—The headache is still very severe, with pain in her limbs; had fever and chills last night; coughs and raises less; no diarrhoea, or pain in side; pulse 108. Gave twenty grains of the hypophosphite of lime.

*October 21st.*—Has again had diarrhoea.

*October 27th.*—Diarrhoea has been checked; pain in throat, and cough, have increased; no fever or sweating. Decreased to twelve grains.

*October 29th.*—Intense pain in throat. Gave twenty grains of the salt of lime.

*November 3d.*—Had bleeding of the nose yesterday; headache; no sweating or fever; less pain in throat. Decreased to eight grains.

*November 6th.*—Evacuation natural; great desire to sleep; less cough and expectoration; appetite and strength better; the nose bled again yesterday; pain in throat still remains. Ordered twenty grains of the hypophosphite of soda.

*November 11th.*—Still coughs a great deal. Stopped treatment.

*November 12th.*—No fever or sweating; great difficulty in breathing. Gave twelve grains of the salt of soda.

*November 17th.*—Severe pain in the throat; otherwise entirely free from pain.

*November 27th.*—The weather has been so bad that she has not visited me for ten days—during which treatment was suspended. Ordered twenty grains of the salt of soda. No notes were taken after this date, and a short time afterwards she died.

## CASE NO. XXXIII.

Sylvain Gabriel A——: 34 years old; carpenter; married; born in the department de la Creuse. His parents, brothers and sisters are all healthy.

*July 7th, 1856.*—The patient can give but a very unsatisfactory account of his antecedents. According to his statement, he was attacked, in January last, with fever, which recurred every evening, accompanied with chills. In June, after having been engaged in washing his room, he was seized with a violent pain in the side, with cough, which has continued up to this time; has also the fever every evening, beginning at seven o'clock and lasting until four in the morning. The fever is not preceded by chills, but the perspiration moderate after it. Says he has never spit blood; is of a nervous-sanguine temperament; very thin, and so excessively weak as to be scarcely able to walk; has pain in the right side, on a level with the lower angle of the scapula, which is not stationary; cough is sharp and quick, and most troublesome at night; expectoration is mucous, and not very abundant; appetite small; digestion poor; is often troubled with colic pains.

Resonance, on percussion, normal on both sides in front, except that the liver seems to extend from the level of the fifth rib, to about four inches below the false ribs. The respiration and sound of the voice seem about normal over the front of each side of the chest; sounds of the heart natural; resonance, on percussion, normal over the back; respiration not clear on either side, especially in the infra-scapular-fossa, where there is also dry crepitation, especially well-marked during a cough, and marked resonance of the voice. In the left sub-scapular-fossa, at each full inspiration there is friction sound.

*Diagnosis.*—Is rather uncertain: probably pleuritic adhesions on the left side; some softened tubercles on the right, on a level with the sub-scapular-fossa.

*July 14th.*—Commenced treatment with ten grains of the hypophosphite of lime.

*August 12th.*—Since the last note, the patient has very much improved; he is stronger, and has much less cough and expectoration.

*August 26th.*—For several days this patient has had fever, and intense cephalalgia, occurring most frequently in the evening, but sometimes in the middle of the day, and generally preceded by chills. During this time digestion has been imperfect, although there has been no diarrhoea; the night sweats have been excessive; so that yesterday he was obliged to change his shirt twice; his strength has much diminished.

*August 29th.*—Had less fever, headache, and pain yesterday; have suspended treatment for the past eight days. Made another physical examination, and found decided diminution of resonance on percussion, in the whole right sub-clavicular region; in the same spot, feeble respiration, with dry crepitation, and some sibilant râles. At the base of that lung the respiration almost imperceptible, and some deep-seated sibilant râles; considerable vocal resonance under the right clavicle; on the left side, the respiration rude in various localities.

Over the right back, the resonance, on percussion, about the same as on the left side; numerous moist râles in both scapular-fossæ, with great resonance of the voice; under the scapular, the respiration feeble; over the left back, the respiration about normal, with no vocal resonance; pulse 120; respiration 30.

*September 4th.*—Pulse 140; respiration 24; had chills yesterday; but no fever or sweating; has headache each morning on getting up. The patient informs me that about three years ago he had a chancre which lasted eight days, and was cured by cauterization. He has nearly lost his hair, but this he says preceded the venereal disease; his fever dates from eighteen months back; his headaches for more than twelve years; there is no trace of an eruption over his body, and he says there has never been any; but he complains of an itching, most troublesome at night, which he dates from five years ago; that is, two years before the chancre.

*September 9th.*—Had two chills yesterday, one of which was followed by fever and sweating; his strength does not increase. Commenced treatment by ordering ten grains of the hypophosphite of soda.

*September 13th.*—Came to see me on foot; pulse 120; no chills; has sweat and coughed a great deal; appetite is good; no headache or diarrhoea. Decreased the dose of soda to five grains.

*September 16th.*—Fever; sweating; intense gastralgia and headache; no appetite; pains in the arms and shoulders at night; does not cough or raise much.

Stopped the treatment.

*October 1st.*—Is in about the same condition; is excessively weak, and troubled by his night sweats, having to change his shirt four or five times each night; has a burning fever for about four hours each morning, with violent headache; palpitation of the heart; pain in the right side, under the nipple; cough dry, and much increased; no diarrhoea; pulse 120.

Auscultation shows decided dullness over the whole of the right side, both at back and front; respiration almost gone in the whole of the right lung, except by a forced inspiration; in various places, especially behind, can be heard deep-seated dry crepitation; voice and cough more resonant than on the right side; on the left side the resonance, on percussion, seems about normal; the respiration is slightly increased, and in the sub-scapular-fossa there is some crepitation; the voice and cough present no marked characteristics; the pulsations of the heart can be felt below and to the inner side of the left nipple, having its point in the epigastrium; its sounds are normal, but there is a slight *souffle* at the first moment. Commenced the treatment with ten grains of the hypophosphite of ammonia.

*October 6th.*—Increased the dose to twenty grains.

*October 7th.*—The patient has passed a wretched night; the fever and sweating were excessive; prostration is so great that he has much difficulty in even sitting up. Decreased the dose to six grains.

*October 9th.*—Has improved somewhat. Increased to ten grains.

*October 10th.*—All the symptoms, general and local, have improved.

*October 11th.*—Saw some streaks of blood, yesterday, in his expectoration; auscultation reveals the same signs as before, but more marked on the right side; at the base of the left lung, behind, there are some râles; the friction sound has diminished; under the left nipple, a slight *sihilant* râle.

*October 17th.*—Says he has passed a better day than for some time before; has had no fever or sweating; appetite is good; has no headache or palpitation; can walk about his room; cough is the same; and there is still blood in his sputa.

*October 20th.*—Fever and sweating the whole night; is much weaker; has no appetite; headache and palpitations have returned. Decreased the dose to four grains.



*October 21st.*—Changed the treatment to eight grains of the hypophosphite of lime.

*October 26th.*—Feels better; has coughed and sweat less. Increased the dose to twelve grains.

*October 27th.*—Decided improvement. Ordered sixteen grains of the hypophosphite of lime.

*October 29th.*—Reduced the dose to eight grains of the lime salt, with the addition of twenty grains of the hypophosphite of potassa.

*November 6th.*—For the past eight days he has been taking twenty grains of the hypophosphite of potassa. The expectoration has increased; but the fever, chills, and sweating, have much diminished; he has scarce any appetite or strength. Ordered ten grains each of the hypophosphite of soda, potassa, and lime.

*November 7th.*—Has more strength and appetite; coughs and sweats very little, but expectorates enormously.

*November 8th.*—Passed a good night; was suddenly attacked this morning with a violent pain over the whole right side of the chest, with violent dyspnoea; cough frequent, with profuse purulent expectoration. The resonance, on percussion, is very great over that side, with amphoric respiration.

Died six days afterwards of pneumo-thorax. No autopsy.

There was probably a complication in this case of an old pleurisy with adhesions of the pericardium. For this reason the treatment was employed with hesitation, especially at the outset. It seems to me, *now*, that the specific treatment was not decided enough at the commencement; that it was suspended too often, and that the doses were not large enough.

The use of the hypophosphite of potassa and ammonia in this case, as in some others, appeared to increase the expectoration and other signs of tubercular softening. The salt of ammonia likewise caused a discoloration or blackness of the stools.

## CASE NO. XXXIV.

Mademoiselle Julie D——: sister of the patient given as case 32; 25 years old.

Was examined on the 1st of July by M. Louis, who made the following notes and diagnosis:

Dullness under the left clavicle for some distance, with feeble or bronchial respiratory murmur, accompanied by sub-crepitant râles; same condition over the back, on that side; but less marked; right side normal; the left lung only is tuberculous, but is affected to a great extent.

*July 8th.*—Saw her for the first time. She says she was ill four years ago from an attack of pleurisy, but that she recovered from this and continued in good health for a year and a half; two years ago, began to cough and lose flesh; catamenia have never been regular; has had leucorrhœa; is much weaker than formerly; never has spit blood; sweats only at night, when fatigued; has a shifting pain in the left shoulder, so that she cannot sleep upon that side, as it causes her to cough; coughs constantly, but most at night and morning; expectoration is

mucopurulent; her voice has become much more feeble for the past six months; has no pain, on pressure, over the larynx, but some pain in the throat, particularly when in the act of swallowing.

There is dullness over the upper two thirds of the left side, both before and behind; respiration is feeble, and varied by dry crepitation and some sibilant râles; there is resonance, on percussion, on the right side, with normal respiration.

*Diagnosis.*—Tubercles in the first and second stages, occupying the upper two thirds of the left lung. Ordered ten grains of the hypophosphite of lime.

*September 1st.*—She has steadily improved up to this time, and has gained so much in strength that she has been able to attend to her business, as before her sickness; her appetite is good; there is no fever, night sweat, nor diarrhoea; at the end of July her catamenia returned as regularly as ever, but they did not appear at this period, owing, as she thinks, to a fatiguing walk which she took, and a cold which she caught at the same time; since then she has had headache, with slight fever and some sweating. Ordered a mustard foot-bath at bed-time.

*September 2d.*—Catamenia appeared slightly yesterday.

*September 3d.*—Catamenia were suppressed yesterday.

*September 6th.*—Cough and expectoration have been increased since the suppression of the catamenia. Changed to ten grains of the hypophosphite of soda.

*September 10th.*—Gave five grains of the hypophosphite of lime.

*September 15th.*—Changed to ten grains of the soda salt.

*September 18th.*—Gave twenty grains of the same.

*September 22d.*—Cough has slightly increased. Reduced the dose to ten grains.

*September 29th.*—Catamenia appeared yesterday.

*October 4th.*—Sweat more than usual last night; had fever and chills at night; cough is frequent; no appetite. Gave four grains of the hypophosphite of ammonia.

*October 11th.*—Has had fever and chills every night, with headache; cough and expectoration somewhat diminished. Increased the dose to twelve grains of the ammonia.

*October 15th.*—Pain at the left side, on level with the seventh rib, when she coughs. Her aunt tells me that she attributes the aggravation of her symptoms to family troubles and care.

*October 17th.*—Gave twelve grains of the hypophosphite of lime.

*October 23d.*—Has had all the time more or less fever with the chills; pain in her throat, which makes it difficult for her to swallow; cough and expectoration less. Increased the dose of lime to sixteen grains.

*October 29th.*—Has had no fever since last date. Gave twenty grains of the hypophosphite of soda.

*November 28th.*—Has continued in about the same condition; the difficulty in her throat gradually increasing; the fever, cough, and sweating were much less.

The patient did not visit me after this date, and died at some time in the early part of January.

## REMARKS

### UPON THE CASES COMPOSING THE THIRD SERIES.

Deducting the first six cases, in which the disease had almost reached a fatal termination at the commencement of treatment, the following remarks will apply to all the rest of those composing the third series.

In the last seven cases there was a well-marked and persistent alleviation, especially noticeable in the complete change in the attitude and physiognomy of the patients, in the disappearance or modification of the constitutional symptoms, and in the decided increase of the strength.

Of these seven cases, it seems to me that in four, (*viz.*, Nos. 27, 29, 32 and 34), after this amelioration (especially remarkable in cases 27, 29 and 34), there was a renewed aggravation (immediately following in case 27), in consequence of repeated walks of several hours' duration; and in case 29, of having remained exposed to a draught of cold air at the gate of the Tuilleries, where he had run for shelter from a shower.

The subject of case 34 had recommenced her ordinary labor, as before her illness, and was even detained later than usual on account of the approach of New Year's day. Grief and domestic cares appear to have at least contributed to the suppression of her catamenia, the return of which was the extent of the improvement which she at first experienced.

The aggravation in case 32 was especially noticeable at the approach of bad weather. In this case, as also in cases 28 and 31, there existed for sometime before treatment a diarrhoea which resisted all remedies.

In case 31, this complication was increased at several different times by excesses in diet. It is reasonable to suppose, that, with regard to case 28, the variolous eruption, if it did not hasten the softening of the tubercular deposit, already far advanced, at least contributed, by its influence upon the intestines, to aggravate the already existing diarrhoea.

Finally, analyzing the details of these different cases, it seems to me their fatal issue ought to be directly attributed to the anatomical lesions existing before the treatment, and to the pathological consequences which these lesions would necessarily produce.

Whatever may have been the influence of the treatment upon the diathesis itself, it could not act, except indirectly, upon the physical results already produced by the diathesis. For the same reasons that an anti-venereal treatment will not prevent a *buho* from suppurating, whenever the local inflammation has attained a certain severity; or the organic lesions of the viscera, resulting from malarious fevers, will not disappear directly under the influence of sulphate of quinine; so an anti-tubercular remedy, while removing the cause of the disease, cannot restore the local lesions which are the results of it. The maxim, *sublata causa, tollitur effectus*, in reality applies only to functional disorders; while organic lesions, once established, will follow the course which is peculiar to them, and which, to a certain extent, is independent of that which has produced them. This will be still more evident, if the cases of the third series are compared with those of the first, which resulted favorably.

## ADDITIONS TO THE PRECEDING REPORT.

IF the hypothesis, that *all tubercular diseases arise from a diminution of the oxydable phosphorus contained in the human system*, shall be finally sanctioned by experience, it will naturally induce a modification, to a certain degree, of all the present ideas of the etiology, pathology, and even of the semeiology of these affections. It would be premature, at this time, to speculate upon these changes, until the facts I have advanced have been confirmed by a more extended series of experiments; but there is something to be gained, in my opinion, by examining certain questions raised by the subject itself, and which it is necessary to solve before deciding what is the limit to the efficacy of the treatment I have proposed.

How can it be expected, it is asked, that the hypophosphites of lime and soda should cicatrize a cavity, or cause the disparition of a bronchial dilatation?

To this I answer: we cannot always expect such a result; and disappointment will certainly follow if the treatment is looked upon as infallible. Indeed, clinical experience may, perhaps, demonstrate that this permanent relief occurs rarely. All that we can reasonably ask is, that *the treatment should dissipate the diathesis*—that peculiar state of the body which has, as a consequence, the deposit of tubercular matter. When once this condition has been modified, **THE DEPOSITION OF FRESH TUBERCULAR MATTER WILL CEASE.**

As to the morbid products existing anterior to treatment, two things will happen: if they are fresh, they will in some cases be absorbed; if they are old, they must follow out the indications of their own independent existence, and result naturally, either in calcification, in becoming encysted, or in elimination by softening and suppuration.

This is a repetition of the two deductions I have before mentioned, and upon which I now again insist: firstly, that the treatment will act with just so much greater rapidity, according as it is resorted to at an early stage in the progress of the disease; a fact recognized under every form of treatment, and by all practitioners: secondly, that when the local lesions have attained a certain degree, the prognosis depends entirely upon



their gravity, their extent, the constitutional condition of the patient, and the position, as regards hygiene and climate, in which he happens to be.

Under these circumstances, it is all-important for us to place the patient in a hygienic and climatic position, which will, especially during the time occupied by the process of elimination of the tubercles, remove him as much as possible from the chances of those inflammatory complications to which he is so liable.

The respiratory organs in all consumptives have an extraordinary susceptibility to these troubles, which is easily explainable from the fact of their being already the seat of a pathological action, of which the principal feature is a hyperæmia of all the tissues about the tubercular deposit. Moreover, the patient is prostrated by his sickness, and consequently much less in a condition to resist meteoric influences.

This SPECIFIC TREATMENT, *by increasing materially the nervous power*, places the patient under the most favorable conditions to meet the sudden changes of temperature ; but on the other hand, as it also INCREASES THE QUANTITY OF THE BLOOD, it likewise augments the relative state of plethora, and renders him more liable to a development of inflammation.

In warm climates, where all inflammations of the respiratory organs are infinitely less severe, or frequent, than in Europe, the most simple precautions are sufficient, and the treatment can be employed at its maximum. In cold countries, *especially during the winter*, it is highly important not to go beyond the point of sanguification which, if I may so express myself, comports with the condition of the patient.

Health consists, in reality, in a perfect equilibrium of all the functions : nevertheless, for a patient, a part of whose respiratory apparatus does not work, or in whom there is at the same time going on a process for the expulsion from the economy of some injurious element, there is a certain abnormal, or, as medical men call it, unstable equilibrium, which it is necessary to maintain. The art of recognizing, and treating in every patient, this *unstable equilibrium*, constitutes medical skill.

I therefore particularly recommend to all practitioners the necessity of watching that their patients do not abuse the state of improvement which this treatment superinduces, often in cases of the gravest character. It is difficult to persuade a patient who is no longer troubled with night sweats ; who has no fever ; who has regained his appetite and strength ; who has only a slight cough and but little expectoration, that it is ALL-IMPORTANT for him to take the greatest precautions to

guard his improved health. This is the more especially requisite when his social position, and the necessity for his earning his livelihood, impose additional reasons for giving heed to your advice. In one half the cases given in the third series, *the fatal termination was at least hastened* by the setting in of some inflammation, which seized the little pulmonary tissue still capable of performing its functions, in consequence of some act of imprudence in diet, or exposure to atmospheric change.

This treatment of tuberculosis does not pretend to overturn all the theories hitherto furnished by pathology; but, on the contrary, it explains and confirms them. These preparations have, and can only have, that conditional degree of power which all medical and human means possess. To demand more, would be to ask what is impossible and ridiculous.

Whenever the truth of this hypothesis is settled; when general experience has demonstrated the value of the facts I have announced, every one will hasten to employ these medicines *from the commencement of the disease*, and even as a PROPHYLACTIC in doubtful cases. It is in this way alone that we shall derive all the benefits they afford, and shall finally succeed in **ABOLISHING THE GREATEST EVIL WHICH AFFLICTS HUMANITY.**

But if this be so, some will say: if these preparations can only cause the absorption of recent tubercles; if the tubercular deposits, when they have reached a certain age, can only disappear by a process of elimination, your treatment can do no more than we already know how to perform. This objection is a reasonable one; yet, in truth, it ought not to be regarded as an objection, but rather as a confirmation of my theory; for it was the knowledge of this fact which induced me to engage in these researches and experiments.

The pathological fact, and the treatment which I have discovered, cannot, it is true, do more than is done every day, and has been done for a long time; but they effect it with this difference: that all the cases capable of being relieved, that is, those where the organic lesions have not passed a certain stage, will be cured by an agent, and in a manner, which we actually know about; while to-day, *by all the means known to us*, WE CAN BUT RARELY—VERY RARELY, EFFECT A CURE; and then only, as it were, blindly, and almost by accident.

From this uncertainty in regard to treatment, arise the two opinions which exist among medical men as to the cure of phthisis. According to the *pessimists*,\* no one can cure consumption; according to the *op-*

\* *Pessimist*: one who complains of every thing as being for the worst; as opposed to the *Optimist*, who holds the opinion that all events are ordered for the best.

*timists*, it is sometimes cured : there are those, even, who say always. For my part, I must say that I agree with neither the one nor the other.

Take a consumptive person in whom the disease is just commencing, and which presents only sufficient symptoms for us to form the diagnosis ; the optimist will say, with reason, that by ordering an appropriate regimen, some well-known remedies, and above all, those hygienic rules which are in reality equivalent to *a complete change in his manner of living*, and the patient will have a good chance of recovery. On the other hand, the pessimist, with nearly as much reason, will declare him doomed to an almost certain death. One or the other will be right or wrong according to the period which he appoints for the realization of his prognosis.

It is true, that the progress of the disease can often be suspended, and that in very rare cases the symptoms may disappear, especially if the patient is wealthy enough to avoid all the *causes which reduce his vitality* ; but in the large majority of cases, the disease will not retrograde, and sooner or later the patient will succumb to the tubercular affection.

The prognosis of phthisis has two characteristics, depending upon the two points of view from which it is formed. One is decided by the extent of the existing tubercularization, and the rapidity of its progress. This is the present prognosis. It is often favorable. It can exist but a short time, only at the outset of the disease, when we can lay aside all consideration of the diathesis. The other is the final prognosis. It is not only formed independently of all local lesions, but is based upon the nature of the disease itself ; upon the almost absolute certainty that the first crop of tubercles will be followed by a second ; that by a third, and so on, until the death of the patient ensues. In the present condition of the healing art, and apart from my own theory, this prognosis should be a verdict of death in twenty-four out of every twenty-five cases.

It is thus seen that the two opposing opinions in regard to the curability of phthisis, are equally true in some respects, and that both of them are founded upon an incomplete consideration of the question.

The objection against the specific powers of the hypophosphites, based upon the fact that phthisis is cured sometimes by other remedies, and sometimes without any medication whatever, is therefore of no value. The objection can be raised equally as well against any principle of therapeutics however well established it may be.

The same argument may be advanced with equal force in regard to

many other maladies. Patients suffering from intermittent fever sometimes recover without the use of quinine; those from chlorosis without iron; so also *may* the consumptive without the hypophosphites. This however does not prevent quinine from being a specific against malarious diseases; nor the iron against anæmia; neither will it any more prevent the hypophosphites from being recognized as a specific against tuberculosis.

The spontaneous cure of consumption is even a proof in favor of my hypothesis, since it finds in this fact a natural means of explanation. This theory, unless I am much mistaken, will account for the influence on phthisis of all the curative means of which experience has hitherto recognized the value; above all, of the various hygienic agents, such as cod liver oil, arsenic, and antimony. I shall not enter upon an examination of these points for the reasons already given, but shall take them up and consider them in the chapters entitled *History*, and *Deductions*.

The preceding report having been intended for reading before the Academy, it was necessary to compress it as much as possible; for which reason I only hinted at certain points to which I wish now more especially to call the attention of practitioners.

I have employed the hypophosphites of lime and soda in the treatment of phthisis because it has always seemed to me that the use of the salts with the bases of potassa or ammonia, was followed by an augmentation of the expectoration, and the signs evidencing a softening of the tubercular deposit: a fact which accords very well with those already known concerning the action of these two bases. In *certain cases*, however, the employment of these two last salts has seemed to me indicated; when, for instance, I wished to act upon old inflammations, whether in non-tubercular subjects, or in those where the phthisis should rather be looked upon as a complication than as the principal disease.

On a previous page I have mentioned a case of asthma, depending upon a chronic bronchitis, in which the hypophosphite of potassa was employed with success. In case No. 11 it was also given with advantage.

The hypophosphite of ammonia has appeared to me to have an analogous action to that of potassa; but in addition, it seems to exercise a special influence upon the hepatic secretion.

One or two trials made with the base magnesia did not furnish such sufficiently decided results, that I think it worth more than a mere mention. Its effects seemed very similar to those of potassa and ammonia.



More extended observation will, without doubt, establish what is the difference between the modes of action of these various salts, and enable us to determine to which of them we should decidedly give the preference. *It will suffice for the present, I think, to use the salts of lime and soda.* Generally I employ the first in preference to the latter, especially at the commencement of treatment. Later, when there are evidences of plethora, I replace it by the soda, which seems to me to have a less energetic action. The hypophosphite of lime appears also to have an especial influence over the expectoration, which it sometimes reduces too rapidly, as by it the cough is increased. When this is the case, it is necessary to change it for the salt of soda.

Experience alone can decide whether the hypophosphites are the most efficacious remedies in existence, or whether they can be replaced by other combinations; for instance, by the organic alkalies, with the basic phosphorus. These were the preparations I first thought of employing. Before using them, however, it will be absolutely necessary to try their effects upon animals in order to discover whether they produce in the system phosphorized hydrogen, the action of which appears to be essentially deleterious. There is also an opportunity to investigate whether hypophosphorous acid alone would not, under certain circumstances, produce a different therapeutic effect from these salts.

The action of the hypophosphites, with iron for the base, should be experimented with, only with great care. In several cases where I have prescribed iron, in connection with the hypophosphites, *its administration has seemed to me to occasion, or at least to be followed, by hemorrhages, or inflammation.* The union of iron with hypophosphorous acid appears to be almost useless against the tubercular diathesis, for the reason that the amount of iron sufficient to saturate the ordinary dose of the acid, *would probably be dangerous*, and certainly could not be repeated as often as necessary.

The same remark applies to all other bases which require to be administered in small doses. There is one, however, a medicine which can be given in quite large doses, which will present, I think, peculiar advantages by its union with hypophosphorous acid, namely, quinine. Rousseau Brothers, manufacturers of chemical agents, were kind enough, at my request, to prepare a specimen of this hypophosphite of quinine. It is an amorphous salt, of a yellow orange color, having the consistence of soft wax, burning readily, like resin, on exposure to heat. It is very soluble in water, and has the bitter taste of all the salts of quinine. There are two diseases for which I think it can be used with great ad-

vantage—yellow fever and the cholera. I shall show elsewhere the reasons upon which I base this assumption.

The hypophosphites seem to unite all the properties (with the exception, perhaps, of the aphrodisiac), and none of the inconveniences, which are attributed to phosphorus by the old authors, and can be employed in all cases where that substance has seemed to possess advantages. My object, however, being simply the discovery of a remedy against tuberculosis, all the other theories which arose from my investigations received but subsidiary attention. I examined them only so far as I supposed they might favor a solution of my own problem.

The question which I now submit for examination, is, whether the hypophosphites of lime and soda are specific remedies against tubercular diseases; especially, whether they are *prophylactic*. Whatever may be the result of the examination, I think that the therapeutic formula I have given, will be found necessary to explain the action of every new remedy proposed as a specific against this disease, viz., that *it must be a combination of phosphorus in a state at once both assimilable and oxydable*.

Hypophosphorous acid, and the hypophosphites, having remained, up to this time, unused in medicine, have been little studied, or manufactured, even by chemists. The principal investigations are those of M. H. Rose, and Professor Wurtz, to be found in volumes 38, and 7 and 16, of the 3d series of the *Annales de Chimie et de Physique*. It is not very astonishing, therefore, that the hypophosphites which are now ordinarily sold, and which have been prepared in consequence of the great demand created since the presentation of my report, should not always present THAT PURITY INDISPENSABLE TO SUCCESS IN THE TREATMENT.

According to the method now adopted for its preparation, the hypophosphite of lime can be mixed with the hypophosphites of magnesia or potassa. The salt of soda can contain the *carbonate* or sulphate of soda, or even the hypophosphite of baryta. *Both of them can be adulterated with lime in a free state*, or with the *carbonate* or *phosphate* of lime. I have seen samples composed almost entirely of these two latter salts. It is easy to understand that their presence, even in very small quantities, is very far from being an affair of no consequence. The salts of potassa and magnesia, and above all the *uncombined lime* and the salt of baryta, can be especially injurious. I wish to call the attention of physicians, especially of apothecaries, to this point, for the special reason that since I have made my treatment public, I have noticed in patients who have

purchased the remedy from various laboratories in the city, effects differing from those produced by the hypophosphites which I have myself prepared. I have also had sent to me from England some specimens of the salts of lime and soda *which were excessively impure*.

I wish, therefore, that all practitioners, who obtain only negative results, or who notice different phenomena from those I have stated:—for instance, if there is increase of expectoration, or a sudden onset of diarrhœa, when none existed before, would carefully examine whether the medicine is pure.

The mode of administration is very simple, as the medicine has very little taste, it being not much unlike common salt. Twenty grains of it dissolved in half a tumbler of water, or milk, can be taken without being noticed by the patient.

I have already stated, in another place, the doses which I have found to be the most advantageous. In each case, however, the physician must be guided by the progress the disease is making: by the constitution of his patient; but, above all, by the change occasioned by the treatment in the general symptoms,—such as the weakness, sweating, loss of flesh and appetite, fever, etc.

The best rule I can give is this: in every case where the local lesion is not very severe, increase the dose at the rate of two grains each day, until the general constitutional symptoms have disappeared; then keep at this amount until the first signs of plethora manifest themselves. For a description of which see cases 8, 9, and 16. The best dose to obtain this result, in adults, is from fifteen to twenty grains.

In cases of greater severity it is sometimes impossible to employ so active a treatment, in order not to predispose the patient to inflammatory complications, especially if he is treated during the winter, and is obliged to expose himself to atmospheric changes. It should never for a moment be forgotten, that any exposure, however slight,—the simplest chill—even a draught of air, may suddenly induce a fatal result, at the very time when there was every reason to hope for a favorable termination. This point cannot be too strongly insisted upon.

It is indispensable, in every case apparently *cured*, to continue the treatment for some time after the disappearance of all the constitutional and local symptoms:—for a PREMATURE SUSPENSION IS ALMOST UNIFORMLY FOLLOWED BY THE RETURN OF ALL THE SYMPTOMS IN A SHORT TIME.

The length of time during which the remedy should be continued, will vary for each case; but, in general—all other things being equal—

it will be in direct ratio to the age of the affection ; and to the amount of nervous impressibility which characterizes the tubercular predisposition. [See chapter entitled "*Deductions.*"]

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## HISTORY.

I HAVE given in my Report the reasons why I was induced to consider the tubercular diathesis as a modification of the normal phosphorized element in the system ; and have also stated why I chose the preparations containing hypophosphorous acid, as the agents to be employed against it. I have also mentioned the works upon the subject which I knew existed anterior to my experiments, and which served to facilitate and shorten my labors, or change their direction.

My object in giving these details was to make known the process of reasoning by which I arrived at my conclusions, attaching all the more importance to them, because it is by the means used that science is distinguished from art. I am willing to avow, without any affectation of false modesty, that I am not indifferent to the idea that, if the results I have given are confirmed by experience, Medicine, properly so called, (by which I mean the art of healing,) will take rank among the inductive sciences.

When I commenced my experiments with the hypophosphites, I supposed I was the first person who had examined their action upon the animal economy. But when it is considered that the medical profession is scattered over the whole globe, it would be difficult, not to say impossible, to keep any of its members cognizant of all scientific investigations. Especially is this the case when they have, for a long time, been removed from contact with each other. Since my return to Europe, I have occupied myself with looking up and examining all the works bearing upon the subject written anterior to my investigations. I will mention what I have discovered,—first, in order to pay the tribute of respect to truth, and the efforts of those who have preceded me ;—secondly, in order to show how little foundation there is for the almost universal opinion, that experiment is the only source of medical progress. Isolated facts no more constitute a science, than a pile of stones constitute a building.

I will give the medical history of phosphorus and phosphoric acid,



in so far as they relate to the tubercular diathesis, and after that, the facts I have discovered relative to the three acids in an inferior degree of oxydation.

I stated in my report, on page 13, that as early as the year 1802 phosphorus was employed with success in two cases of tubercular meningitis by Coindet, which fact may be found on page 211 of his work, "*Memoire sur l'Hydrencéphale*," published in 1817. The average dose which he gave was three grains dissolved in oil, in the twenty-four hours. His remarks upon the subject were concluded in the following words: "This remedy demands too much attention in its preparation and administration ever to become of daily use in medicine. That well-known passage of Boerhaave seems to apply particularly to it: '*At prudenter a prudente medico, si methodum nescis, abstine.*'" Barthez and Rilliet, in their work, *Maladies des Enfants*, (vol. iii., p. 526,) state that they have employed this substance at the maximum dose of forty grains, without obtaining any, even temporary effect; but they give no details on the subject. I have given on page 14 the explanation of this apparent contradiction.

But the most remarkable suggestion was made by Dr. Theophilus Thompson of London, physician to the *Brompton Hospital for Consumption*: an establishment for the exclusive treatment of phthisis. On page 123 of his work, *Clinical Lectures on Pulmonary Consumption*, (American edition,) Dr. Thompson suggests that phosphorus might be useful in the treatment of consumption, because, according to Dr. Rees, (to whom I alluded on page 12,) that element plays an important part in sanguification. The idea of Rees, according to a paper published in No. 219 of *Brewster's Philosophical Magazine*, entitled: *On a Function of the red Corpuseles of the Blood, and on the Process of Arterialization*, is as follows:

The phosphorus exists in the globules of the venous blood, combined with fatty matter and hematosine. It is oxydized in the pulmonary vesicles by contact with the air, and transformed into phosphoric acid; which, in its turn, combines with the salts of soda in the serum, and thus produces the change of color which characterizes arterial blood.

Dr. Thompson remarks, in addition, that, as cod liver oil contains phosphorus, it perhaps *owes its efficacy to that element*. He even goes so far as to look for an explanation of its method of action, in the suggestion, that as this element has a great affinity for oxygen, it may serve to diminish the action of this gas upon the lungs, and thus prevent the formation of pus and a tubercular deposit. He cites several

cases in which he employed a solution of phosphorus in oil, and from which he obtained satisfactory results; but as, in the majority of such cases, the alleviation was sustained but a short time, he seems not long afterwards to have abandoned his experiments.

Dr. Thompson, as was the case with Barthez and Rilliet, was able to employ the phosphorus only in small doses; less than a grain each day. This, as I have before stated, furnishes the reason for his ill success. His work, printed in 1854, is a reproduction of the clinical lectures which were published in 1851, in Vol. II. of the *Lancet*; but when I commenced my investigations I had not seen it. It is only necessary to read this book in order to be convinced that the author is a shrewd and conscientious observer, and one who possesses a logical, well-disciplined mind. Yet how strangely it happened, that although he held in his hand the solution of the problem—although he was fully aware of the remarkable work of Owen Rees, he did not advance one step towards discovering under what form phosphorus entered the system, and what was its method of action when there.

It is true, that the idea of Rees was not generally adopted; that even to-day it is rejected by the most distinguished physiologists and chemists, among whom is Professor Milne Edwards, who states on pages 479 and 480, Vol. I., of his work, *Leçons de Physiologie Comparée*: "These experiments are not given with sufficient numerical detail to inspire confidence in the results which the author has deduced."

But the idea of Rees appeared to the mind of Dr. Thompson sufficiently well based, for he has admitted it: besides, he could have—he even should have—given it the value of an hypothesis, and used it as the initial point for his own experiments.

As in science consecutive truths have only a relative value, depending upon the stand-point from which they are examined, so every hypothesis is legitimate from the moment it points to some practical conclusion. But to-day hypotheses and theory in medicine—but more especially in therapeutics—are tantamount in the minds of many to dreaming, and every thing chimerical.

Among others who have treated of the subject of phosphorus, Doctor Turck, in an article entitled *Du phosphore et de quelques phosphates aux points de vue physiologique et thérapeutique*, published in the number for January, 1857, of the *Revue de Thérapeutique Médico-Chirurgicale*, after mentioning the various theories of authors upon the action of phosphorus, expresses again the opinion that this substance would prove useful in phthisis, as well as in many other diseases. In the ex-

planation which he gives of its probable action, he agrees with Rees, whose work he does not seem to have been acquainted with; and also with certain ideas of my own, which I have stated more fully under the chapter headed "*Deductions.*"

These are all the facts which I have been able to collect upon the employment of phosphorus in phthisis. It is beyond the province of my subject to mention here the other therapeutical uses of this substance.

In 1849, Doctor Beneke, in a work entitled *Der phosphorsaure Kalk in physiologischer und therapeutischer Beziehung*, published at Göttingen, starting with the supposed action of the phosphate of lime in the formation of the elementary tissues, has endeavored to find, in the amount of this substance, the cause of tuberculosis. This work was known to me at my first trials, from a review or notice of it which appeared in No. 24 of *Braithwaite's Retrospect*, and I have already acknowledged the information I derived from this source.

Since the presentation of my report to the Academy, Doctor Larcher has advanced a claim to priority in the suggestion of this idea, having announced, as he declares, as early as 1824, that the tubercular diathesis depended upon a diminution of the calcareous elements of the bones. He does not, however, state in what publication this idea of his can be found. Other practitioners have, no doubt, employed this substance; but as it seems to me that their experiments have no relations to the special treatment of tuberculosis, I think there is no ground for discussion upon the subject.

I will now pass to the consideration of those combinations of phosphorus which contain less amounts of oxygen.

The action of phosphorous acid upon animal life has been examined by a large number of experimenters, but wholly in a toxicological point of view.

The first, in point of time, was Hünefeld, who, in the September and October numbers of *Horn's Archiv für Medicinische Erfahrung*, for 1830, on page 861, has given the result of two experiments upon a rabbit. The animal was first given twenty-five grains of hydrated phosphorous acid, without any appreciable effects. A dose of eighty grains of the same acid, given twenty-four hours later, caused death in about twelve hours.

In 1844, Weigel and Krug, wishing to discover the difference between the relative actions of pure and impure phosphoric acid, gave a rabbit forty-five drops of phosphoric acid, containing a tenth of phospho-

rous acid, in three doses, with intervals of half an hour between each. The animal died an hour and a half after the last dose. A second rabbit, to whom he administered thirty drops of the same acid, died in about four hours. (*Casper's Medicinische Wochenschrift*, 1844, p. 455.)

Finally, Woehler and Frenichs, by the aid of this substance, killed several animals. A pigeon, to whom they administered a solution containing ten grains of anhydrous phosphorous acid, lived an hour; and a cat, to whom was given a solution representing twenty grains of the acid, died in thirty-six hours.

These results are contradicted by those obtained, in 1854, by Doctor Basilius Sawitsch, as given in his inaugural dissertation, published at Dorpat, and entitled, *Meletemata de acidi arsenicosi efficacia*. The object of his experiments was to determine the difference between the action of the combinations of arsenic and those of phosphorus. He injected into the stomach of a cat twenty grains of phosphorous acid dissolved in a little less than two drachms of water, which represented about ten grains of the anhydrous acid. The animal vomited several times, but otherwise seemed to suffer no inconvenience. The next afternoon he gave the same animal double the quantity of the same solution of the acid without producing any other effects than slight vomiting, and foaming at the mouth.

On the 3d of May, 1854, Sawitsch himself took forty-four grains of phosphorous acid (equivalent to twenty-two and one-fifth grains of anhydrous acid), dissolved in sweetened water, in two doses, with an interval of a quarter of an hour. On the 5th of May he took, in the same manner, fifty-four and a half grains (equal to thirty and seven-tenths grains of anhydrous acid). In each case he could discover no change whatever in his health. The same experimenter tried, also, upon cats, the phosphite of soda. Professor Buckheim, of the University of Dorpat, under whose suggestion and direction the scholars of that university have, since 1848, undertaken and published a series of most remarkable original researches upon all medical substances, has also tried upon himself the action of the phosphite of soda.

I regret, very much, not having been able to procure the thesis of Dr. Sawitsch, in order to examine the details of his experiments. The remarks which I have made upon it are founded upon extracts from a work of Bernhard Schuchardt of Gottingen, which appeared in 1855, in *Henle and Pfeuffer's Zeitschrift für Rationelle Medicin*, (VII Band 3 heft. p. 235,) under the title of *Empoisonnement aigu par le phosphore*.

Dr. Schuchardt, himself, made experiments upon rabbits with the



phosphorous acid in doses of from ten to twelve grains, which gave the same results as those of Sawitsch and Buckheim.

These are all the toxicological facts I have been able to discover concerning phosphorous acid. The only observation which I know of relative to its therapeutic effects, is one recently published in the *Lancet* for July 18th, 1857, (three days before I presented my Report to the Academy), which we owe to Dr. Rowbottom, of London. It gives the treatment of a case of asthma by the use of this substance at the amount of eighty grains daily. The author, however, not having stated the degree of concentration of the acid, the real proportion of anhydrous acid taken by the patient cannot be known.

On pages 288 and 289, volume V., of the *Dictionnaire de Matière Médicale* of Mélat and Delens, it is stated that the action on the system of the different preparations of phosphorus should be attributed to the hypophosphoric acid. This is the same result which I have reached by another route. [See page 13 and 14.]

In the *Pharmacopœia Universalis*, of Geiger and Mohr, page 24, vol. II., the directions are given for the preparation of this acid, which, in their opinion, is useful in malignant fevers.

The facts relative to hypophosphorous acid and its salt, are even less numerous. They consist of four experiments only, made by Sawitsch, and given also in his thesis. The first two were made upon a cat, to whom he gave at the first trial twenty grains of the acid (equivalent to two and a half grains of the anhydrous acid), and on the second double the quantity. A slight vomiting was the only effect experienced by the animal; and this was probably due rather to its action on the œsophagus than to the acid.

On the 7th of May, 1854, Sawitsch himself took a solution containing eight and one-tenth grains of the anhydrous acid, and two days later, another containing twelve and two-tenths grains,—without any perceptible result. Dr. Buckheim also tried, upon his own person, the effects of the hypophosphite of soda;—but I have no information in regard to the result of his experiments.

It appears, however, by a passage in his work, (*Lehrbuch der Arzneimittellehre*, page 320, Leipzig, 1854,) that he had conceived the identity, as regards physiological action, between hypophosphorous, phosphorous, and phosphoric acids. The following is the passage referred to:

“It is evident that it is not by parting with its oxygen, that the phosphoric acid acts upon the economy, for it does not produce the same functional modifications as phosphorus. It has been generally believed that the phosphorus transformed

itself into one of its combinations with a less degree of oxygen: for example, into hypophosphorous, or phosphorous acids; and that it was under this form that it produced its effects. Woehler and Frenichs, basing their opinion as much upon their own experiments as upon those of Weigel and Krug, have concluded that phosphorous acid has a poisonous effect analogous to arsenic. The investigations, however, of Sawitsch, show that phosphorous acid, as well as hypophosphorous acid, in their pure state, act upon the economy exactly like phosphoric acid; and become injurious only under the same circumstances as that acid. The same holds good, also, with the salts of soda. Taken even in very large doses, they occasion no appreciable disturbances in the system. It is fair, therefore, to conclude from this, that it is highly probable the effect of phosphorous upon the system depends upon its action as a simple body, and not to its transformation into one of its oxydized combinations."

It would be premature to decide in a positive manner, at this time, upon the question as to what particular form phosphorus assumes in order to act upon the system; but Dr. Buckheim seems to me to have deceived himself, by concluding that the sub-acid forms of phosphorus have the same action upon the system as phosphoric acid, because, according to his reasoning, they are not poisonous at the doses employed by M. Sawitsch. If, instead of confining himself to one or two trials, this investigator had employed the different combinations successively, he would, I think, have reached a different result, and would have formed the conclusion that the hyphosphosphites were especial agents destined to supply one of the greatest wants in medicine.

In closing this cursory glance at the history of this medicine, I will give the only therapeutic,—or rather pharmæological fact,—which I have been able to discover concerning hypophosphorous acid and its salts. It must be taken for just what it is worth.

On page 290, vol. II. of the *Pharmacopée Universelle*, of Jourdan, 2d edition, is the following formula:

#### HYPOPHOSPHITE OF POTASSA.

Tincture of salt of tartar.

Granulated phosphorus, *q. s.*

Saturate in the cold, decant and preserve.

Jourdan places this preparation among the combinations of potassa. He gives neither the doses, the properties, nor the uses; and states the source of the formula to be the *Pharmacopée Usuelle* of Van Mons, published at Louvain in 1821 and 1822. It is to be found on page 562, vol. I. of that work, under the title of *Hydrophosphuré de potassa liquide*; and also on page 437, of vol. II., under that of *Teinture phosphorée de sel de tartre*. Neither the properties, doses, nor origin of this

formula are given by Van Mons. It is possible that it may never have been used, and that it is merely an illustration of those numerous new preparations which are scattered through his work, and which are imagined rather in view of a chemical or pharmacological, than a therapeutical utility. What makes me incline to this opinion, is, that in addition to the hypophosphite of potassa, this preparation ought to contain, if we can judge from its strong phosphorized odor, some one of the combinations with hydrogen. It seems to me, therefore, probable that its use would present the same dangers as all the other preparations of phosphorus prepared in a druggist's store. It was my intention to try it upon animals; but up to this moment I have had neither the time nor opportunities.

It will be seen by the preceding pages, that if medicine—if therapeutics, especially—consists, as many persons pretend, merely of facts; if the verifying and registry of phenomena is the sole duty of a physician; if by them alone new truths can be discovered; then there is enough, and more than enough, material to have reached long ago the result which I have attained. If, up to this time, this result has remained undiscovered, it was neither owing to want of skill, nor of enterprise on the part of experimenters; but solely, I think, because the method which they employed was incomplete and erroneous.

It would be the height of ignorance, and what is worse, ingratitude, for a graduate of the Medical School of Paris to deny the impulse which the school of anatomy has exerted upon the art of healing. Established by Bichat, it has given a vitality to surgery which animates it still. In medicine, it has given us Laennec and other learned men, who alone by their works—happily for us of the present day—have immortalized the epoch: whose profound researches in pathological anatomy and semeiology have placed diagnosis upon an immovable basis.

Unfortunately, by continued identification with its work, this school has finished by seeing nothing beyond it. For it, the study of disease has ceased to be an examination of an abnormal condition, which is modifying the principles of life, and which, when it has passed certain limits, breaks down existence itself; but is simply a means of verifying the effects resulting from it—effects beyond which this school never seeks to pass.

Medicine is not for it the art of preventing, of relieving, and of curing disease; but only that of determining,—of foreseeing, during the life,—the lesions which will be found, subsequently, upon the dead body. For

it, in a word, the study of organic disorders, which ought never to be but a means, has finished by absorbing everything, and by becoming the sole object.

It results from this, that the process especially appropriated to this kind of research, namely, that of observation, or *verification*—a process by itself essentially secondary and barren, has been the only one employed, the only one extolled. On the other hand, the process of *invention*, or induction—the only really fruitful one, the one alone which is progressive—has been neglected, or even formally proscribed. Applying to the living, acting, suffering, human mechanism the means which it has employed in studying the dead body, it has ended, in pathology, by a localization of diseases and a description of their results; in therapeutics, it has led to skepticism and folly. What especially proves this, is the fact that the sole real discoveries made during its reign—vaccination, the use of iodine, and anæsthesia—were made *outside* of its influence; and are so far from being consequences of its suggestions, that it can neither explain nor understand them.

It is simply because it has been sought to adopt in therapeutics the processes employed in anatomy, and to restrain every thing within the limits of observation—or, as it is facetiously called, simple and practical observation, (without doubt because it leads to nothing)—that the art of healing, to-day, is in such a state of confusion and inferiority, compared with the other sciences. It was a grand mistake to adopt completely into one range of knowledge the technical processes proper only to another; for if the means which are used in the different sciences are identical as regards basis, they are modified in each according to a certain end to be attained.

There is about the same difference between the processes of pathological anatomy and those of therapeutics, as there is between those of mineralogy and those of chemistry. One of these sciences employs only examination and description; the other can only advance by experimentation and induction: for whoever employs one must necessarily use the other.

It has not been by waiting humbly and silently that Pathology and Chemistry have spoken their last words; that Therapeutics has fulfilled the task which has devolved upon it. These two sciences will only furnish it the materials, the germs, from which it must, itself, produce definite results. Already, on every side, are to be seen evidences that some bold spirits have appreciated this truth; that some few, even still less in numbers, have always recognized it.



Let us hope, therefore, that after we have had a School of Anatomy and of expectant medicine, the day will come when we can raise, not upon the ruins, but upon the foundations, a school of Therapeutics and of SPECIFIC REMEDIES.

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## DEDUCTIONS.

The character or office of every true scientific principle is, to agree with facts already well established ; to manifest, clearly, its own reasonableness and aims ; and finally, to lead to such conclusions as will enable us to examine many new, and perhaps unexpected, correlative subjects.

I propose to present, in this chapter, some few of the deductions which I think legitimately flow from my own investigations ; the correctness of which it is my intention satisfactorily to establish. The circumstances previously referred to having heretofore prevented it, I must even now content myself with barely mentioning the conclusions I have arrived at, hoping at no distant day, that I shall be able to examine the subject more fully, especially in a chemical point of view.

Some of these deductions, in my estimation, are novel ; and most of them are confirmatory of the facts heretofore stated by other observers.

*In physiology*, it will always remain an established truth that the inorganic elements of all fluids constitute an essential part of them. The nature and proportions of these elements influence, in the most important degree, the constitution and function of all organic matter. It would be a good comparison to say, that they act, in relation to liquids, an analogous part to that of the osseous system in its relation to all the other solids of the body ; that they are, so to speak, the skeleton of the fluids.

It must be admitted that phosphorus is found in the system in a combustible form. It is probable that it is in this form that it exists in the blood globules, and that *its oxydation constitutes one of the essential phenomena of sanguification*. It also exists in nervous matter ; and certain facts would seem to indicate that every act of innervation has, as a condition or a consequence, its oxydation. There is an opportunity to examine whether this element is introduced directly into the economy, or whether it is not the result of a chemical reduction. If the latter, the seat and conditions of this action must be sought for.

*In pathology*, it will be shown that many diseases—above all, many

diatheses—have, as an essential condition, the modification, in some way, of the fluids of the body anterior to the anatomical lesions which are peculiar to them; that these lesions, once established, have a progress pathognomonic to them; and that, consequently, every diathesis offers a double problem: one including the phenomena, symptoms and progress of the diathesis itself; the other, the phenomena, symptoms and progress of the lesions which result from it.

In all chronic diseases, it is probable that the primitive alteration consists, above all, in a modification of the proportions of the inorganic constituents of the fluids of the body.

The etiology of tuberculosis can be summed up in the single word, *prostration*, chronic or repeated, which embraces all the conditions indicated as the starting-point of this disease.

The hereditary predisposition, which is one of the prominent characteristics of this affection, finds, by this hypothesis, a satisfactory explanation. This predisposition depends upon that singular impressibility which exists in all consumptive subjects; who are, if such an expression can be used, *machines* employing large amounts of phosphorus in combustion.

If it should finally be demonstrated that not only the phosphorus is oxydized, but also deoxydized in the system, there will be an opportunity to discover how prominent a place in the production of the disease is held by whatever can produce any disturbance in this process of reduction of the phosphorized element. Perhaps, on the ground of simple conjecture, we have a right to hazard the opinion that eventually the different varieties of disease can be explained in this way.

*In therapeutics*, the most important problem to solve, in the present condition of science, is to conclusively determine the influence exercised over the different morbid states, either by the augmentation or diminution of each of the approximate principles of the human economy, or by changes in the properties of the inorganic elements of the blood.

Chemistry will furnish, by analysis, important facts upon this point, if not direct conclusions. In default of this, however, it will be often possible to reach a solution of the problem by the single route of therapeutic experimentation, starting from the facts already known.

The physiological and therapeutical action of the majority of medicinal agents, when that action is neither mechanical nor chemical, could be explained, in some degree, by a species of substitution, analogous to the law of substitution in chemistry; each of the constituents of the system being replaced by an homologous substance. In the same

manner, therefore, that there are homologous substances in chemistry, there would be homologues in therapeutics. It is probably in some such theory that an explanation of the incontestible influence of arsenic and antimony, in consumption, may be looked for. These substances are, in chemistry, the homologues of phosphorus. The therapeutical effects of iodine and bromine, are also the chemical homologues of chlorine and fluorine.

In future, the rational treatment of a diathesis will presuppose a cognizance of the morbid condition which is its point of departure, as well as of the proper means to cause its disappearance : and it will be well understood that the SPECIFIC TREATMENT of the diathesis *will not influence*, except indirectly, *the physical lesions already established* ; but that their ulterior evolution will depend upon the action consequent upon CHANGES IN THOSE CONDITIONS OF THE SYSTEM, WHICH GAVE BIRTH TO THE DISEASE.

END OF THE TREATISE.

## IMPORTANT CONSIDERATIONS.

CONSUMPTION is well known to be, in popular phrase, "a flattering disease;" and not until the physical signs are manifested in *wasting, debility, cough, hectic, sweats, &c.*, does the patient or his friends awake to a sense of danger. None seem willing to admit that the malady which is slowly, silently, insidiously sapping the foundations of life, can be that dreaded, fatal scourge; and so, ignorant of their true condition, they procrastinate, *waste away*, and in a brief period, fill premature graves.

Whatever may have been the ill-success of former methods of treatment in pulmonary affections, by which Consumption came to be regarded as *incurable*, it is now made certain that the CAUSE and the SPECIFIC REMEDY have been made known to the world through the patient researches of Dr. Churchill. If, therefore, sufferers refuse to avail themselves of the means which science now offers for the *Prevention* and *Cure* of this greatest scourge of the human race, they become the victims of their own neglect and unbelief. In no malady, so surely as in Consumption, is delay fatal to the patient.

An early resort to the use of the Hypophosphites will, by changing the diathesis, PREVENT A DEVELOPMENT OF PULMONARY DISEASE in those predisposed to it, and produce a SPEEDY CURE in the incipient stage; while, in every case, however far advanced, relief to some degree *is certain*, and in a large majority of cases, CURE IS THE RESULT OF THE TREATMENT.

In all NERVOUS DISEASES, the Hypophosphites are equally the *Specific Remedy*. From their action in strengthening the NUTRITIVE FUNCTION, and from "their power of relieving nervous prostration," no one suffering from dyspepsia or debility should hesitate a moment in resorting to their use.

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The SUMMER is the most propitious time for the employment of the treatment at its *maximum*: 1st. Because "the patient should be placed under the most favorable atmospheric influences *during the elimination of the tubercles*." 2. Because the patient's *predisposition* to an *inflammatory* state is less likely to be aggravated by sudden changes. And 3. Because the time of recovery is related to the progress of *sanguification*, and this can be carried to the *proper point* with more safety than during the rigor and change of winter.



## A P P E N D I X .

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### M E M O R I A L

*Concerning the Treatment of Pulmonary Phthisis, and the physiological and therapeutical action of the Hypophosphites, by J. FRANCIS CHURCHILL: presented to the Imperial Academy of Sciences, May, 1858. (Extract by the author.)*

I have the honor to submit for the consideration of the "Academy" several memoranda, giving the results of the treatment of forty-one cases of Phthisis, by the Hypophosphites, since the publication of my work, a copy of which I now lay before it. These results *fully confirm all that I have heretofore written concerning the efficacy of these preparations in pulmonary phthisis*: and it would be easy for me to show that the ill success of other practitioners, in such cases, was owing either, 1st, To the lesions pre-existing to the treatment which were of themselves sufficient to cause death; 2d, To the existence of complications; or, 3d, To the impurity of the salts employed, and which were administered without regard to the conditions I have laid down, and consider essential.

I have no hesitation in saying that, when these conditions are complied with, *the cure of Consumption in the second and third stages*, (at a period, therefore, when there can be no doubt as to the nature of the disease,) *is the rule, while death is the exception*. I am also prepared to assert that, contrary to the opinions generally received, the third stage of Consumption is, all other circumstances being equal, more amenable to treatment than the second. Hereditary predisposition seems in no way to counteract the curative powers of the Hypophosphites, as the patients in whom it was most strongly marked, recovered as rapidly as the others. I therefore ask the opinion of this Academy upon the cases of disease, of which I now present the notes of observation, (made before any decided result was observed), in order that it may be able to determine whether the cases in question were actually attacked with pulmonary phthisis.

It is not alone as a CURATIVE AGENT, but above all as a PROPHYLACTIC, that the Hypophosphites should be employed in combatting a disease which, (as M. Payer has shown) is almost entirely unknown among nations in a savage state, but which has become the permanent scourge of civilized life.

Independently of its influence upon the public health, the final decision of this question is of the highest scientific interest. If the *specific efficacy of the Hypophosphites against tuberculosis* were once established, we should, I think, arrive at a

solution of a problem which has much occupied the attention of both chemists and physiologists, viz., the determination of the state in which phosphorus exists in the system. We might then be able to decide, definitively, that besides the phosphate of lime, there also exists a "principle," or "element" containing phosphorus in a condition capable of oxydation—(a theory which has already been advanced in the works of different authors, especially those of Vauquemel, and M. Fremy on "The Brain")—which "element" plays an important part both in regard to innervation, and to *hematosis*, or sanguification; and which would, perhaps, also explain the intimate union between this first function and the phenomena of general nutrition, such as calorification, &c., which has been incontestably proved by the experiments of several physiologists, especially by those of Claude Bernard.

This conclusion, viz., that phosphorus exists in the economy in an oxydizable state, is confirmed not only by the results I have already published, but also by the *beneficial effects which the use of the Hypophosphites have produced* in those general morbid conditions depending upon a defect in the power of innervation, or of nutrition; such as chronic bronchitis, asthma, spermatorrhea, marasmus, anemia, rickets, as well as in cases of debility or prostration common to women during pregnancy and the period of lactation. My own observations, and the experiments I am now making upon the growth of young animals, also indicate the soundness of this hypothesis.

I believe I was the first to point out, nearly a year ago, the importance of this phosphoric element, and the relation which probably existed between the *variation of its proportions* and the different morbid conditions of the system, more especially of the tubercular diathesis. It is, at least, indisputable, that I was the first to draw from the probable existence of this element, a pathological and therapeutical induction, and to demonstrate, by experiment, that whenever there was reason to suppose a deficiency of oxydizable phosphorus existed, we had a rational mode of *SUPPLYING THIS DEFICIENCY* by the use of such a preparation of Phosphorus, as unites the two conditions of being in a state capable of *immediate assimilation*, and, at the same time, at the *lowest possible degree of oxydation*. These characteristics are found to exist in the Hypophosphites of Lime and Soda in the most complete manner.

The theories which I thus but briefly refer to, are discussed more fully in my work, now presented to the Academy, and form the starting point of this memorial. If I allude to them in this paper, it is only because they form a component part of a general theory of Physiology and Therapeutics; and also, in consequence of the presentation here of certain considerations on the subject, professing to be original, which are only a reproduction, almost *verbatim*, of my own,—with this difference, that the agents said to have been employed are substances the composition of which and their mode of preparation are unknown, while the Hypophosphites are positive and defined combinations, hitherto of no commercial value, but well known to all chemists; and which, since my discovery of their therapeutical properties, in the treatment of Phthisis, are employed, or experimented with, throughout the whole of Europe.

## LETTERS FROM DR. CHURCHILL.

[The following extract from a private letter is published with a view to fulfill the desire of Dr. Churchill, expressed therein, "to induce the medical profession to give his treatment a *fair* and *complete* trial," on the conditions laid down by himself. It will be found to contain a comprehensive view of the hypothesis proposed by Dr. C., upon the truth of which the judgment of the world is demanded.]

PARIS, December 17, 1853.

MY DEAR SIR: \* \* I very much regret my utter inability to send you a copy of my work on Phthisis. The whole edition was sold off in less than six months, and it has now been out of print since February last. \* \* \* I am now engaged upon a second edition, which has been delayed with the hope of my being able to settle the question of the existence or non-existence, in the economy, of phosphorus in an oxydizable condition. The chemical proof of its existence, in such a state, I now confidently hope I shall shortly be able to lay before the profession and the chemical world. \* \* \*

My views with regard to Phthisis may be summed up in very few words, and are as follows:

Phthisis is a diathesis, or general disease, depending upon the want or undue waste of the oxydizable phosphorus normally existing in the animal economy. Hence, it follows that the remedy consists in supplying the deficient element by the administration of *any preparation* of phosphorus which is at once assimilable and oxydizable. Now phosphorus itself possesses the latter quality, and has occasionally been used with success; but it has not the first, and is so dangerous a substance that it has fallen into complete disuse. Phosphoric acid is assimilable, but not oxydizable.

The *Hypophosphites* combine both qualities in the highest degree, being perfectly soluble, and nearly as oxydizable as phosphorus itself; for which latter reason I originally preferred them to the *phosphites*, which are less so.

As to the cause of Consumption, my hypothesis leads also to one or two other consequences of the highest importance in practice, viz., although the Hypophosphites are the SPECIFIC REMEDY of the diathesis, they cannot cure, by *their own direct action*, the local diseases which the diathesis may have produced in the lungs or elsewhere, previous to the employment of the remedy. To expect the contrary would be just as reasonable as to think that the water thrown upon a burning building can do the work of the mason or the carpenter.

The repair of such local disorder is brought about by the special energy of the parts affected, and will take place in all cases in which the destruction of the parts involved has not gone beyond a certain *extent*. The *degree* of the disease I hold to be of less moment than the *extent*, and incline to go so far as to look upon Phthisis in the third stage as of a more favorable prognosis than in the second, *all other circumstances being equal*. The prognosis of each individual case will, therefore, depend upon two points—the extent of the existing lesion, and upon the presence or absence of complications.

Another consequence, which is, if possible, of still greater importance than the cure of the disease, is the following :

If Consumption depends upon the waste of the oxydizable phosphorus, it follows that the hypophosphites not only have a remedial, but a preservative power. In fact, *they are a complete prophylactic*. Such, I am confident, will prove to be the case ; and the time will come, I hope, when Phthisis and Tuberculosis, instead of occupying the first place in the causes of mortality, will, like small-pox at the present day, form a comparatively insignificant item.

My reason for this confidence is not derived from my assurance of the correctness of my general theory, but from the *invariable efficacy* with which I have found them act in all incipient cases, even of the acute kind commonly called Galloping Consumption.

I am anxious that all these assertions should be verified by the medical profession throughout the world. With them, and them only, does it rest to establish or to deny their validity. Unfortunately, the past history of our art shows that every discovery in therapeutics has been met with a storm of prejudice and opposition such as finds no parallel except in the records of religious dissension. I might have much to relate on that head in my own case, but prefer leaving such matters in the obscurity to which posterity is sure to consign them.

If, as you say, the people of the United States take an interest in my discovery, the only way in which I should wish them to show it would be by inducing the Medical Profession among you to give my treatment a *fair and complete* trial, which, I conceive, can only be done upon the following conditions :

1. That no case shall be considered to have any bearing at all upon the question at issue, unless it be expressly shown that all the conditions which I have laid down as necessary have been complied with.

2. That in each case not only the degree, but also the extent, of the tubercular deposit, preëxisting to the treatment, shall be recorded, together with the symptoms upon which this diagnosis is founded.

3. THAT THE TREATMENT USED SHALL BE THE HYPOPHOSPHITES AS I HAVE EMPLOYED THEM. I DO NOT CONSIDER MYSELF IN ANY WISE RESPONSIBLE FOR THE ILL SUCCESS OF EVERY CRUDE FORMULA WHICH MAY BE IMAGINED BY OTHER PRACTITIONERS.

As soon as my new edition is through the press, I shall have much pleasure in forwarding you a copy of it, and, meanwhile, I remain,

Your very obedient servant,

J. F. CHURCHILL, 17 Boulevard de la Madeleine.

J. WINCHESTER, Esq., 43 John st., New York.



## HYPOPHOSPHITES OF LIME AND OF SODA.

[From the latest letter written by Dr. CHURCHILL in regard to his discovery, published in April last, the following copious extracts are made. It will be seen that the Theory first promulgated by him is sustained by a most remarkable degree of success in his own practice, and it may now be considered as an established medical fact, that the SPECIFIC REMEDY FOR CONSUMPTION HAS BEEN FOUND. The success attained by this treatment in all the countries of Europe, as well as in the United States, has established the therapeutical value of the Hypophosphites beyond all controversy, and already raised the discovery of Dr. CHURCHILL above "the mists of controversy and prejudice into the serene region of scientific truth."—PUBLISHER.]

NO. 17 BOULEVART DE LA MADELEINE, PARIS.

SIR: From several communications which have appeared in your journal, and from the number of letters I myself have received, it would seem that the treatment of Consumption, by the hypophosphites, is at present attracting considerable attention in America. I have, therefore, thought that the following remarks might appear of sufficient importance to occupy a place in your journal. \* \* \*

In publishing my discovery of the specific cure of Consumption, I was well aware of the natural repugnance of the medical profession to adopt any new remedy, particularly when so many hundreds had already proved unavailing; and I knew that nothing could be a greater obstacle to the general adoption of the means I proposed than the idea that I was actuated, in recommending it, by a motive of self-interest. I have, therefore, from the very first, rejected every proposal to connect myself in any way with, or to derive any pecuniary benefit whatever from, the manufacture or sale of the hypophosphites. I have thus renounced all right to a large, and, in the opinion of most people, a legitimate source of profit, because I look upon the discovery of their therapeutical effects as a trust confided to me, not for my own benefit, but for that of my fellow-creatures. Whether the course I have followed is the best, time alone can determine; but I shall have at least the satisfaction of knowing, that from no one sufferer will this great boon have been withheld from any fault or for any advantage of mine. What I am anxious for is, that the hypophosphites should be brought, as speedily as possible, into universal use, as *I know* that they will prove not only as sure a remedy in consumption as quinine is in intermittent fever, but also as effectual a preservative as vaccination in small-pox.

This assertion no longer rests upon the thirty-four cases with which my discovery was ushered into the world in July, 1857. I can now appeal to the results of upward of one hundred and fifty detailed observations of the disease, collected during the past year at my public dispensary, Rue Larrey, Paris, where any member of the medical profession who has wished to take the trouble, has not only been at full liberty to examine both the patients and the records of their cases, but has also had every opportunity of becoming acquainted with all the particulars of my treatment. To these cases might be added almost an equal number from my private practice; and in no single instance have I found the remedy fail to produce every thing that could reasonably be expected from it. In most instances the benefit derived from it has far exceeded what could at first have been hoped for,

*when taking into account the degree and extent of injury sustained by the lungs previously to the use of the remedy.*

Similar results have, since the publication of my discovery, been announced by Professors Parigot of Brussels, and Maestre de San Juan of Granada, in Spain; as also by Drs. Jacinto Le Riverend and Galvez of Havana, and Reinwilliers of Paris. It is true that by others, in still greater numbers, the remedy has been declared useless, or even dangerous; but, in every instance in which more than a bare assertion has been published, it would be easy for me to show that not only have the experimenters neglected the rules I had laid down as necessary to insure success, but have, in fact, violated the most elementary principles of scientific observation. I will mention but one instance.

In February of last year, after a trial at the Brompton Hospital for consumption, in London, the hypophosphites were declared to be utterly useless upon the following grounds: the remedy was used for *one fortnight* in *twenty* cases, *eight* of which it is admitted improved during that period. It was assumed, however that this improvement was to be attributed to change of diet and regimen; because, after leaving off the hypophosphites, the patients, *it is said*, were found to improve more rapidly under the use of cod liver oil and tonics than they had done before.

Now it will strike every one that the trial of a remedy for consumption, during *one fortnight only*, looks very much like a sham; and the suspicion is confirmed by the haste with which the experiment is left off, not only in the cases which are stated *not* to have improved, but also in those which are allowed to have done so. As if further to perplex the matter, no time is allowed for the effects of the hypophosphites upon the system to work off; but cod liver oil is administered, without any interval, and is credited for the continuance of the improvement which is said to have been observed.

As no dates, however, are given, we are left in the dark as to how long this improvement was kept up after the discontinuance of the hypophosphites. The same discreet silence has also, up to this day, been observed with regard to the final issue of the investigation. Not one of the patients is stated to have recovered under the use of the remedies employed after the abandonment of the hypophosphites. Two of them are allowed subsequently to have died, and of the fate of the rest, nothing is said; while, on the other hand, one of the patients felt so much benefited during the first fortnight, that, when the hypophosphites were discontinued, he refused to take any thing else, and left the hospital. Upon such facts as these I feel that all comment would be superfluous. Your readers will find the original document in the *London Medical Journal* for February 13th, 1858. An answer to it was published in the *London Medical Circular* of the 7th of April.

I can confidently assert, and will prove in the forthcoming edition of my work, that every refutation of my views which has yet appeared, rests upon no better foundation than the preceding; a fact which is mainly to be attributed to the present unscientific condition of pathology and therapeutics. No astronomer, no natural philosopher, no chemist would be allowed to impugn the results arrived at by another unless he were able to show that, in his own experiments or observations, he had kept account of all the conditions of the problem. In medicine, on the contrary, nothing is commoner than for a physician, who has often merely ascer-

tained by hearsay that a given remedy has been used in a given disease, to suppose that all he has to do is to make up his mind as to the *name* of the disease, and then get his patient to swallow a certain dose of the drug. Such conduct will appear the more preposterous if we reflect that the phenomena of life, and still more those of disease, are of a much more complex order than those of inorganic matter; and, as such, require for their production a much greater number of conditions, the neglect of any one of which will prove fatal to the result.

\* \* \* The subject is one of considerable difficulty, partly owing to the nature of the question itself, and partly to the views at present prevailing in pathology. I again, however, reiterate the assertion with which I first announced my discovery, viz., that in all cases where a cure is not effected by the use of the hypophosphites, the reason of this ill success will, upon examination, be found to depend on one of the following causes: either the salts are impure, or they are not administered according to the rules I have prescribed, or the patient is suffering from a complication of some other disease; or, lastly, the extent of lung already involved by the tubercular deposit is too great to allow of recovery taking place.

If neither of these last two considerations exist, the degree or stage of the malady is comparatively of secondary importance. Out of twenty-two cases in the third or last stage treated at my dispensary during the past year, eight have completely recovered, eight have died (*owing in every instance* to some one of the last two mentioned causes), and six are still under treatment. Such a result is altogether unparalleled in the annals of medicine, and I hope shortly to lay it before the medical world, along with several other instances of the same kind from my private practice. For the present, I wish to confine myself to a subject which is not only, if possible, of more general interest, but which may be sufficiently divested of technical particulars to be intelligible to the general reader. I mean the prophylaxis, or prevention of consumption.

The prevention of disease has, of late years, been the object of a great amount of study; but this has chiefly been directed towards *hygienics*, that is, the preservation of health; and not toward *prophylactics*, or the prevention of disease. Progress in the former direction will be mainly dependent upon the spread of civilization, and upon improvements in the manner of living; in the latter, it can only proceed from the advance of medicine itself as a science. Although by far the most useful branch of it, prophylaxis, has been as yet but little cultivated, it is chiefly because the physician is usually so entirely engrossed with the phenomena of actual disease, that he has neither time nor means to attend to any thing else. The dominant views in medicine are also almost completely opposed to progress of this kind; and to crown all, the interest of the profession lies exactly the opposite way. Thus, what ought to be the true aim of medical science is that to which least attention is paid. The greatest discovery of the kind hitherto made—perhaps the greatest discovery in medicine—is that of vaccination, whose efficiency is such that the ravages of small-pox are now, so to speak, only a matter of history. The time, too, will come, when consumption, instead of slaying, as it now does, nearly one-sixth of the whole human race, and more than one-half of the adult population of most civilized communities, will dwindle down to an insignificant item in the causes of mortality. I am afraid, however, that it will not be until at

least two generations of the medical profession have passed away, that this result will be attained, and that my discovery will rise above the mists of controversy and prejudice into the serene region of scientific truth.

If, as I assert, the hypophosphites be the specific remedy of phthisis, because one at least of the essential conditions of that disease consists in the want or the undue waste of the oxydizable phosphorus in the animal economy, it follows that consumption will be prevented simply by taking care to keep the system supplied with a due amount of that element. Now, if there existed any certain signs or symptoms by which we might recognize either that phthisis is impending, or that the phosphorized element is deficient, the prevention of the disease might be effected with perfect certainty.

Unfortunately, such is not the case. The same causes which have tended to keep physicians unacquainted with prophylaxis, also act to make them comparatively ignorant of etiology, or the science of causes, and of the premonitory signs of disease. On the other hand, chemistry, although it has of late outstripped almost all the other sciences, is far from having arrived at the degree of minute accuracy which would be requisite for the solution of the second form of the problem. Still, there are a certain number of signs by which the advent of phthisis is usually announced, and when the whole series of those I am about to enumerate is met with, there can seldom be any doubt of the fatal nature of the disease. These symptoms are frequently so well marked as to draw the attention even of the uninitiated. In many instances, however, some of them may be but faint, or they may be latent for a time; most of them taken severally are also to be met with in other disorders. I would therefore earnestly advise every sufferer, in all cases where it is possible, to take the advice of a competent physician, and, above all, of a practiced stethoscopist. What upon a superficial view may have seemed only a forewarning, will, upon due investigation, but too often be found to depend upon advanced lung disease, either overlooked for want of examining the chest or undetected from a deficiency in the practice of auscultation.

If, without any apparent cause, or under the influence of causes which induce weakness or exhaustion, such as want, grief, overwork, excess, pregnancy, child-bearing, nursing, rapid growth, slow recovery from other diseases, a person begins to lose his flesh, strength, color, or appetite—if he suffers from shortness of breath, or sleeplessness, and experiences a general feeling of languor and depression—there is reason to fear that he is already predisposed to the complaint. If to these symptoms be added a cough, however slight, particularly if it has come on slowly, or during the fair season, the probability is still greater. If with all this, there is a feverishness toward evening, with sweatings or clamminess at night, particularly about the head or neck, if spitting of blood should occur, it is likely that the disease has already reached the stage at which it shows itself by deposition of tubercular matter in the lungs.

The import of these signs will be heightened should they occur about the period of puberty, or between the ages of fifteen and thirty-five, especially in a person whose family has been similarly afflicted. Now, if, on the *earliest* appearance of these symptoms, especially of those first enumerated, the patient takes daily about ten grains of the hypophosphite of lime, or of the hypophosphite of soda, he will



usually see all these signs disappear in a period varying from a few days to a month; and by continuing the occasional use of the remedy he will speedily find himself in the enjoyment of such health as he perhaps had never known in his life before. Ten grains daily is the *safest* dose for an adult male, though sometimes double that amount must be given to produce the proper effect. For females, particularly if delicate, and for children, the dose must usually be much smaller. The younger and the more sensitive the patient, the more readily is he influenced, and the dose should, therefore, decrease in higher ratio than the age of the subject. Thus for infants it should seldom exceed *one-fifth of a grain* every second or third day.

After the remedy has been used for about a week or ten days, it will be safer to omit it for three or four days together, then to resume it, and again leave it off after the lapse of another period like the first. It should thus be continued from time to time, as long as it may appear to be required, remembering, as the patient improves, to diminish the frequency of the doses. When he has regained his usual state of health, it will be sufficient for him to take one or two doses a week, unless they should be found inadequate to keep him up to that condition. The treatment should be left off upon the first appearance of fullness of blood, with a determination towards the head, which will usually be known by giddiness or ringing in the ears, and especially by bleeding from the nose, *however slight*. It should (except in some few cases), never be used during the acute period of any inflammatory disease of the lungs, whether primitive or supervening as a complication of phthisis. These directions will be found sufficient in the great majority of instances, but it would be impossible for me to go into the details necessary for the treatment of different temperaments and constitutions, without trespassing upon your indulgence to a greater extent than might be found convenient. \* \* \* The best time for administering it is at breakfast along with the food. The pure hypophosphites have a taste very similar to that of common salt, and if given as directed the dose is nearly tasteless. No other drug or medicine should be combined with them, or used at the same time. The salts of lime and soda are the only preparations which, for the present, I would recommend for general use. Lastly, as a general caution, I would observe that if the hypophosphites have been used for two or three weeks in sufficiently large doses without producing any improvement in the patient's appetite, strength, or general appearance, this will, upon due investigation, be found to depend upon one of the causes I have already named.

I here close this over long letter, which I would fain have shortened if I could; and to conclude, I would beg of the press generally throughout the United States to urge upon the medical profession the vast social importance of this question, of which I am but a weak and far too unworthy minister. Will my professional brethren, on your side of the Atlantic, allow me to remind them that in therapeutics, as in every other department of experimental research, no number of negative instances can outweigh one single positive result, obtained under certain determinate conditions, unless it be at the same time shown that, in the negative instances, all these conditions have been expressly complied with, or that they have been omitted because they are of themselves unattainable?

I submit, that in no single case, in which the hypophosphites are stated to have

been unsuccessful, has this fundamental principle been observed, or appears even to have been understood. In no negative case yet upon record have I been able to discover that the investigator's acquaintance with my views of the treatment of consumption extended beyond the mere fact, that the hypophosphites had been used by me at a certain dose.

Will my brethren pardon me if I remind them that antimony, bark, ippecacuanha, hemlock, vaccination, the ergot of rye, etc., were not only neglected, but for years (antimony for one whole century) *condemned* and *proscribed* by the mass of the profession, not because their medical action was slight or equivocal, but because FEW OR NONE WOULD BE AT THE TROUBLE TO INQUIRE INTO, OR LEARN THE CONDITIONS BY WHICH THAT ACTION WAS GOVERNED?

I remain, sir, your obedient servant,

J. FRANCIS CHURCHILL, M. D.

[FROM THE LONDON MEDICAL CIRCULAR.]

### ON THE HYPOPHOSPHITES.

SIR,—In reply to the inquiry of your correspondent, "Dr. W. J.," I beg to inform your readers that the dose of the hypophosphite which I have found the most manageable is ten grains at first, increasing it gradually up to one scruple daily. This quantity I seldom exceed, though in some cases I have used larger doses with benefit. Children, under four years of age, can seldom take more than from one-fifth to two-fifths of a grain daily. In all cases, however, with this as with any other remedy, the physician must watch its effects upon the system, which vary with the idiosyncrasy of the individual. To be used with effect, the hypophosphites must be perfectly pure; otherwise they may, in some cases, appear altogether inert or even injurious. In five cases out of six the salts usually sold pure in Paris, under the name of hypophosphites, are totally unfit for medical use. I am sorry I have not time at present to enter more fully into particulars, but shall endeavor to do so completely in one of my earliest letters. The hypophosphite of soda having, *when pure*, nearly the same taste as common salt, may be given in any form. I usually prescribe each dose to be taken in a tumbler-full of sweetened water, or sweetened milk, or wine and water, or broth, or any other drink that can be taken at breakfast or dinner. I use no other treatment of *any kind* unless required by the existence of complications, such as intercurrent inflammation of the lungs, diarrhoea, cardiac disease, etc.

I remain, &c.,

J. FRANCIS CHURCHILL.

17 Boulevard de la Madeleine, Paris, April 24th, 1858.

## THE PHOSPHATES AND HYPOPHOSPHITES.

BY L. V. NEWTON, M. D.

To the numerous inquiries addressed to us, in relation to these salts, we answer as follows: phosphates, as the name implies, are compounds of bases with phosphoric acid. This acid is a compound of 5 equivalents of oxygen, with 1 of phosphorus, united with 1, 2, or 3 equivalents of water, the latter being the most common form. Bone consists in part of phosphoric acid combined with lime; this phosphate of lime constitutes the solid, or what is called the inorganic part of the skeleton. Phosphates of iron, of soda, and of potassa, are also constituents of the system; the two latter are much concerned in digestion.

The salts of hypophosphorous acid are very different in composition and properties from the foregoing; the acid contains 1 equivalent of oxygen to 1 of phosphorus and 2 of water; instead of being so firmly united together as to resist the action of heat and chemical agents, these salts readily change, giving off phosphoretted hydrogen, or, in contact with free alkali, are decomposed into phosphates and hydrogen gas; they thus seem to have the power of supplying the phosphorus in a nascent or spontaneous condition, which so mysteriously enters into the composition of the brain and nervous system. The hypophosphites, taken as a class, seem to possess the power of increasing nerve force, and promoting the function of nutrition.

In supplying phosphates to the blood they act only secondarily, their primary influence being upon the nervous system. Dr. Churchill, who first brought them into notice, lays claim to them as specifics in pulmonary consumption, alleging that the progress of this disease is altogether due to a waste of phosphorus.

Whether this be true or not, there can be little doubt of the value of these remedies as tonics and alteratives. Their anodyne effect is sometimes quite remarkable; when taken for sometime they tend to produce most refreshing and renovating rest.

The general health of consumptive patients is frequently greatly improved by their use, and we have no doubt they have, in very many instances, prolonged life, and even restored health to persons quite wasted by consumption.—*Chemical Gazette.*

## BRONCHITIS.

[The following general remarks on this complaint are from a popular work by Dr. Samuel Fenwick, on the "Causes and Prevention of Diseases." The Hypophosphite of Potassa, for its stimulating and expectorant effects upon the mucous surfaces, as well as its constitutional action upon the nervous system, is particularly indicated in the treatment of this complaint. We put up a special preparation of this salt in cases of Bronchitis and Asthma.]

When the inflammation of the larynx, which produces the symptoms of a common cold, extends downwards so as to affect the bronchi, or air tubes of the lungs, it receives the name of bronchitis. It is very necessary that public attention should be directed to this complaint, not only on account of its great frequency, but also because, when it often recurs, it produces other changes in the structure of the lungs tending to destroy life.

But it is not only from its fatality that it demands attention, but from its laying the foundation for subsequent attacks of asthma, heart disease, and other complaints of a like fatal character. It is one of the most common and distressing complaints of childhood; it affects the artisan in almost every branch of trade, lessening his powers of labor, and often embittering his existence; whilst in old age it is of the most frequent occurrence, and very generally terminates fatally.

Bronchitis consists in inflammation of the bronchial tubes, and the symptoms of the complaint chiefly arise from the air not getting free entrance into the lungs. The changes produced by bronchitis vary according to the stage of the disease. In its earlier stages the mucous membrane is usually of a red color, from its containing an unusual quantity of blood. When examined by a microscope the vessels are seen to be enlarged and overloaded. The membrane itself is generally thickened, and the epithelium removed, either wholly or in part; the cavity of the tube is also filled with mucous.

The symptoms of the complaint will be readily understood by the above description. The expectoration, which takes place in the earlier stage, consists of the epithelium, which has been stripped off by the inflammation. Afterwards, however, it is secreted by the raw surface of the mucous membrane, and in long standing cases is often as thick as that expectorated in consumption. The loss of the epithelium readily explains the feeling of soreness which the air often occasions when it enters the chest; and as the natural use of the cilia is to move upwards any secretions in the tube, it will be readily understood that the expectoration will be apt to accumulate until expelled by coughing. But if the tubes are thus blocked up, it is plain that the air cannot be so easily forced into them as when they are in their natural condition, and hence the difficulty of breathing so generally observed in this complaint.

In childhood the effects of bronchitis differ materially from those observed in later periods of life. The lung is often seen shrunken and deprived of its air, and death consequently ensues.

In older persons, bronchitis often lays the foundation of incurable disease; the powers of breathing being so much stronger than in children, there is but little



danger of the tubes becoming so obstructed by the expectoration as to prevent all passage of the air. It often happens, however, that the tube is so narrowed that the air escapes from the cells with great difficulty; they therefore become unnaturally distended, and, by the increase in their size, the blood-vessels around them are pressed upon, and partially obliterated. In this way is produced a disease technically called *emphysema*, which forms a large proportion of the cases popularly known as asthma.

Occasionally the bronchial tubes themselves become greatly enlarged after an attack of inflammation. Their mucous membrane becomes thickened, and a train of symptoms is induced precisely similar to those of consumption.

Bronchitis is so frequent in old age, that few persons reach an advanced period of life without suffering in some degree from it. Some are attacked as soon as the winter commences, whilst in others it causes no more inconvenience than an increased secretion of phlegm.

## ASTHMA.

The term Asthma is usually applied to any case in which the patient suffers from extreme or long-continued difficulty of breathing. A person is said to have asthma who is subject to sudden and severe attacks of difficulty of breathing, which, after a short time, disappear, and in the intervals leave him in the enjoyment of health.

"Asthma," says Dr. Fenwick, "arises from violent action of the muscles surrounding the bronchial tubes. The existence of muscles in this situation was long doubted by physiologists; but experiments upon animals have satisfactorily proved their presence. It will be easy to understand that if the diameter of the tubes leading into the lungs is suddenly diminished by the contraction of the muscles surrounding them, intense difficulty of breathing and a feeling of suffocation is the result. Consequently, during an attack of the asthma, we find the unhappy sufferer laboring for breath; fixing his hands on any object near him, so as to enable him to expand his chest to the uttermost; or often lying with his head out of the window to catch every breath of cool air."

Dr. Hyde Salter, in a paper published in the July number of the British and Foreign Medico-Chirurgical Review for 1858, gives the following graphic description of a paroxysm of asthma:

"The asthmatic's breathing is what our forefathers called 'strait,' what we call 'tight;' he feels as if a weight were on his sternum, as if his chest were compressed; as if a cord bound him; as if it would be the greatest relief to him if some one would cut his breast open and allow it to expand; he rushes to the window to get air; he cannot tolerate people or curtains about him; his clothes are loosened, and all the muscles of respiration tug and strain their utmost to fill his chest. But he can neither get air in or out; he can neither inspire nor expire; his respiration is almost at a dead-lock; he cannot blow his nose, can hardly cough or sneeze, cannot smoke a pipe, and if his fire is failing, cannot blow it up; he has hardly air enough to produce the laryngeal vibrations of speech. The

chest is distended, indeed, to its greatest possible limit; the cavity of the thorax is enlarged both in the costal and diaphragmatic directions; the costal distension is shown by the fact that a waistcoat that would ordinarily fit, will not meet over his chest by two inches, while the descent of the diaphragm is shown by the increased girth of the abdomen, and by the heart being drawn down to the scrobiculus, where it is seen beating plainly; such are the violent instinctive efforts of the respiratory muscles to overcome the obstruction to the access of air. But they are unavailing. The air that is without cannot get in, and that which is within is locked up. In spite of the violent muscular effort, there is hardly any respiratory movement; the parietes of the chest cannot follow the action of the muscles; on listening to the chest, the respiratory murmur is inaudible, even when not drowned by the wheezing; respiration is almost *nil*. \* \* \* Thus we see by evidence as certain as sight, that in asthma, bronchial spasm must and does exist, and that no other conceivable supposition will explain the phenomena."

Dr. Salter states that "Asthma is essentially, if not *exclusively*, a nervous disease;" that the extent to which the nervous system is involved differs very much in different cases, being in some cases restricted to the nervous system of the air-passages themselves; other cases, in which the source of irritation, giving rise to the asthmatic paroxysm, appears to be central—in the brain. The causes of asthma are seen to be such as affect the nervous system, and which give rise to other diseases acknowledged on all hands to be nervous. Asthmatics are very commonly dyspeptics, and often exhibit symptoms of perverted and capricious stomach action, that suggest the belief that the innervation of the whole of the vagus is vitiated, its gastric as well as pulmonary portion, and that the dyspeptic and asthmatic symptoms are but parts of a whole.

Dr. Churchill states that the hypophosphites "should be employed in all nervous diseases," possessing, as they do, the "power of *relieving nervous prostration*," or whatever produces any *disturbance in the blood-generating processes*. It is evident, from the particular action of the hypophosphites in STRENGTHENING THE NUTRITIVE FUNCTIONS, and in INCREASING THE NERVOUS ENERGY, that they may be considered the most efficient remedy in dyspepsia, or indigestion, as also for asthma. The Hypophosphite of Potash is considered as more particularly indicated in the treatment of this distressing complaint.

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## CHEMICAL PATHOLOGY OF THE BRAIN.

Chemical and pathological research has established that in certain depressed and deficient conditions of cerebral and mental power, there exists in the brain the *minimum amount of phosphorus*. The brains of idiots have been found ENTIRELY DESTITUTE OF THIS CHEMICAL AGENT. A similar deficiency is perceived in advance of age, and in the early periods of life, when the encephalon is supposed to be entirely in an inactive condition, or not, as far as the intellect is concerned, in a mature state of development. When carbon exists to excess in the blood, the cerebral power is depressed, owing, it is surmised, to the excess of carbon and soda interfering with that union of phosphoric acid and the fatty matter of the blood

necessary to the perfect organization of healthy nervous tissue. Nervous matter is formed in a manner analogous to that in which bile is produced, either, as Liebig suggests, by the separation of a highly nitrogenized compound from the elements of the blood, or by the combination of a nitrogenized product of the vital process with a non-azotized compound—probably fatty body. It is the duty of those especially engaged in the investigation of idiocy, insanity, and other affections of the brain and mind, to ascertain, by a series of carefully executed experiments, whether the alco-phosphoric acid and other essential and important brain elements do not, in certain conditions of nervous ill-health, pass rapidly out of the system in the various excretions. Of the actual deposition of nervous matter in the urine, there can be no doubt. The microscope at once detects it.—*Tri-bune*.

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### CONSUMPTION.

From the report of the Registrar-General of Great Britain, for 1856, we learn that the total number of deaths were 390,506; of which, 94,407 were infants under one year of age. The deaths from diseases of the respiratory organs were 116,740, nearly ONE THIRD of the total number. Of these, consumption claimed 48,950; bronchitis 21,528; pneumonia, 22,653. The Registrar remarks, in regard to the great mortality of consumption: "How many of the thousands of deaths are to be ascribed severally to the fatal stays and the in-door life of women it is not easy to calculate. Air is the pabulum of life, and the effects of a tight cord around the neck and of tight lacing around the waist, differ only in degree, in the time of their manifestation, and in some of their symptoms. To wear tight-laced stays is, in many cases, to *wither, to waste, and to die.*"

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### THE HYPOPHOSPHITES.

As a source from which to supply phosphorus to the system, the hypophosphites must be regarded as of the highest importance. What phosphoric acid may have failed to do, in supplying the waste of phosphorus, it is almost certain that these salts, containing a much less amount of oxygen, are capable of accomplishing.

Dr. Churchill, to whom we are indebted for calling attention to them, is confident that "they will occupy one of the most conspicuous places in materia medica." Although specifically prescribed for Phthisis by Dr. Churchill, it is evident that their beneficial effects are not limited to this one variety of disease. They would seem to be most *appropriate remedies in a large class of affections* resulting from LOSS OF NERVOUS FORCE; also in many of the diseases of infancy, where there is *want of vital action*, and where the osseous system is defective.

These salts are more or less deliquescent, and therefore IT IS IMPORTANT THEY SHOULD BE COMBINED IN THE FORM OF SYRUP, and thus placed under the protection of some agent CAPABLE OF PRESERVING THEM FROM CHANGE.—*Boston Surgical Journal*.

WINCHESTER'S  
GENUINE PREPARATION OF THE  
HYPOPHOSPHITES  
OF LIME AND OF SODA.

PREPARED ACCORDING TO THE FORMULA OF DR. CHURCHILL.

The repugnance not only of the medical profession, but also of the community, to adopt a new remedy, when so many hundreds had proved unavailing in the treatment of consumption, is obviously very great. As inquiries are often made, whether I could point to *reliable* evidences of the EFFICACY OF THE HYPOPHOSPHITES, and as reports have been industriously circulated, by parties interested in producing a false impression, that the BENEFICIAL RESULTS of their use have been confined almost entirely to the practice of the discoverer, I have therefore thought proper to submit to the unprejudiced consideration of the reader, the following extracts from the *medical journals of the United States*, from the letters addressed to me by physicians, and from my *general correspondence*.

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EXTRACTS FROM THE MEDICAL JOURNALS.

"The use of that class of salts known as HYPOPHOSPHITES, offers the most direct and philosophical means of supplying the phosphorus to the system. The small amount of oxygen in combination with this element in the hypophosphorous acid which unites with the alkaline carbonates, the bases of these salts, is favorable to easy decomposition in the economy. By the changes which result from further oxidation, nascent phosphorus and phosphates are liberated. The phosphorus thus set free is certainly in a condition most favorable to the fulfillment of its design and high office in the URAIN AND NERVOUS SYSTEM."—*Boston Medical and Surgical Journal*. (DR. NICHOLS.)

"Whatever may be our conclusions with reference to the claims of Dr. Churchill for the Hypophosphites as sovereign remedies in tuberculosis, THERE CAN BE NO DOUBT AS TO THE VALUE OF THESE SALTS AS REMEDIAL AGENTS."—*American Medical Monthly*, (N. Y.)

"We now see the rationale of the employment of the Hypophosphites of Lime and Soda, recommended by Dr. Churchill, in the treatment of consumption—THEY NOT ONLY ACT AS ABSORBENTS, BUT RETARD OR RETARD THE WASTE OF TISSUE."—H. P. DE WEES, M. D., New York (*in the American Medical Monthly*).

"The recent recommendation, by Dr. Churchill, of the use of the HYPOPHOSPHITES in the treatment of Phthisis, is now undergoing a general test by the medical profession. \* \* \* From my own observation and inquiry, patients using the hypophosphites have experienced marked relief from many of the annoying symptoms attendant upon Phthisis."—J. LAWRENCE SMITH, M. D., Professor of Chemistry in the University of Louisville." (From the *Louisville Medical News*).

"This medicine is scientifically prepared, and reliable. We have used it in our own practice, in phthisis pulmonalis, and other forms of disease, with very satisfactory results. \* \* \* In sixty-eight cases in which this remedy was given, thirty-seven were in the incipient, and twenty-three in the second and advanced stages of consumption; the remainder were beyond hope. With the exception of the latter cases, which were much benefited, ALL BUT THREE, which are still doubtful, RECOVERED PERFECTLY."—*North American Medical Reporter*. [DR. ELMER.]

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EXTRACTS FROM MY MEDICAL CORRESPONDENCE.

"I learned that a druggist in Springfield had some of your preparation, and immediately procured it, to use in two cases in which I had been using Parrish's. It is but just to say that a marked improvement was the immediate result. I have one case of tuberculosis in the second stage, and, to use the patient's own expression, he is 'coming out all right,' under a TEN DAYS' TREATMENT with your medicines. I learn of another in Springfield, an old case of some six years, who has been under many physicians, and, among the rest, Dr. Green, of prophanh notoriety. He has used the Hypophosphites, AND PRONOUNCES HIMSELF A WELL MAN."—A Physician, at Rochester, Ill.

"The hypophosphites, as far as I have used them, HAVE ACTED WELL, very much relieving me, and curing my little boy, who was suffering from marasmus, with a decided strumous diathesis. In the other cases in which I have used the remedy, a marked improvement in all the



*symptoms has been noticed.* \* \* \* I am led to believe it ONE OF THE VERY BEST REMEDIES in Tuberculosis that we possess. The night sweats cease, the appetite improves, the blood is enriched in those constituents which are so essential to health, and which are deficient in those persons predisposed to consumption, viz., *organizable fibrine and healthy red corpuscles.*"—A. HURD, M. D., Oxford, Ia.

"I have used the Hypophosphites, principally in tubercular disease, but also in Chlorosis, and in diseases attended with nervous debility. I consider them the most efficient blood-generating agents with which I am acquainted, and believe they also exert an important influence directly on the nervous system, of a tonic character. They exert an important remedial influence over tubercular disease, by IMPROVING THE NERVOUS STRENGTH AND INVIGORATING THE NUTRITIVE FUNCTIONS. Combined judiciously with air and exercise, care being taken to keep the bowels and skin in proper condition, THEY SEEM TO ME TO BE INVALUABLE."—A Physician, Morristown, N. J.

"I have been superintending the use of your Hypophosphites in a well-marked case of incipient hereditary tubercular phthisis, and have NEVER KNOWN A CASE OF THE KIND IMPROVE MORE RAPIDLY IN THE SAME LENGTH OF TIME."—F. H. HARWOOD, M. D., Rushville, N. Y.

"Your preparation has not failed to benefit in a single instance in which I have used it."—W. F. CLARK, M. D., Lowell, Ohio.

"A patient of mine, who has been suffering with disease of the lungs for several years past, has been using Churchill's Hypophosphites for some six weeks. There has been a MARKED IMPROVEMENT in his case, which was manifest soon after he began the use of the medicine."—J. G. McPHEETERS, M. D., Bloomington, Ind.

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"My wife has taken two bottles, and commenced on the third; and has received such great benefit that I am now of the opinion that it will effect a cure. She is comfortable, rests well at night, has a good appetite, and is GAINING STRENGTH AND FLESH, TO THE ASTONISHMENT OF ALL THAT ARE KNOWING TO HER SITUATION."—JOHN HEPNER, Delhi, Iowa.

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*Extract from a letter dated "Washington, D. C., June 8th, 1859.*

"I gladly give my approval of your 'Preparation.' \* \* \* I have taken six bottles; it has produced a wonderful improvement in my health, not only in REMOVING ALL IRRITATION IN THE BRONCHIAL MEMBRANE, and the tightness in the upper part of my lungs, but also in THE TONE IT HAS GIVEN TO MY WHOLE SYSTEM. I had, at first, a slight cough, and very little expectoration. This is all gone, and my health now is as good as ever, so far as I can judge. Still, your preparation acts so beneficially on the bowels, keeping the system in good order, and in allaying nervous irritation, I shall continue its use occasionally." [The name of the writer is at the service of any inquirer.]

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"I must say it is doing all it is recommended for, and MUCH MORE THAN WAS ANTICIPATED by those who had faith enough to give it a trial."—M. R. KNAPP, North Stockholm, N. Y.

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